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Local Responsibility for World Health*

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A PROFESSIONAL life offers many satisfactions to an individual. It gives him many outlets in an occupation that is congenial because it is of his own choosing. It also tends to develop a large circle of friends as a result of professional contacts. His society, in our case the American Public Health Association, provides many opportunities for extending acquaintanceships and renewing friendships. It is an especial satisfaction to a man when his professional society elects him as its president and he has, as I have this evening, an opportunity to address his many friends.

I have chosen to talk under the title "Local Responsibility for World Health," because I wish to consider briefly the responsibility that falls on each of us for the success or failure of health activities at the international level.

One of the serious problems facing us at the present time is that of developing strong procedures for doing business at the international level. All of us, as members of the American Public Health Association, are concerned with these movements in their various aspects, but since our more immediate concern is health, our attention is focused mainly on the World Health Organization.

I shall not attempt to describe to you the present structure and function of the World Health Organization. This has been well done by others and has been clearly presented in the official publications of this organization. I do wish, however, to talk of certain principles that seem to me important because they are concerned with the issue of bringing the World Health Organization close to all of us as we proceed with our ordinary daily tasks.

I should like to state at the outset that I think we should all disabuse ourselves of the concept of the World Health Organization as an organization functioning at Geneva. We do have such a unit there, founded on fine democratic principles. But it is not enough to have a democratic form of organization. We all recognize that a democracy is successful only if there is an intense and active interest in it on the part of a wide variety of people at the local level. A democracy is strong not from the activities that filter down from the top to the various lower levels, but from the

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stimulus of ideas and actions that come up to the top from the day-to-day operations of people below. This principle, which we recognize as so important to the success of democratic government in our own country, is even more important as we move into the area of such world organizations as WHO. Too often we look at such central organizations with just the one question—What is this central organization doing to perform its task? and forget that this question is never successfully answered in practice if we do not at the same time answer the converse question as to what we in our own particular activities are doing for the success of the central organization. If, as we consider WHO, we cannot give a reasonably good answer to this question, it is bound to grow more and more into a centralized bureaucracy.

It is very easy to proclaim the importance of having an active local interest in WHO, and to have everyone heartily agree. The real difficulty is to determine how such good intentions shall be translated into action. Enthusiasm for world health, developed through meetings, speeches, and such technics is not sufficient, for this will not represent a real interest unless we find some way to crowd into the everyday lives of a number of people some activity that has bearing on world health problems. This is nothing but a statement of the truism that people's real interest lies in what they are doing and not in what they are told about.

I know that you will not expect me to present a broad program for local participation in world health work applicable to the diverse problems which it embraces. I do, however, wish to present certain programs of this nature that have developed and are operating successfully in the field of health statistics.

I am reviewing these programs with you, not because this happens to be my own field, but because there is a longer history of international collaboration in this specialty than in any other in the health program. Out of our long experience with this problem, has developed in recent years an organized program for local participation in the world aspects of health statistics.

It was almost one hundred years ago, to be exact in 1853, that the first international statistical congress was held in Brussels, to prepare "a uniform nomenclature of causes of death applicable in all countries." This and subsequent meetings led ultimately to the adoption of what came to be known as *The International List of Causes of Death* and to an international agreement to hold, every ten years, meetings for the revision of this list.

I do not propose to review in detail the history of the development of the list and its broadening in recent years to include a morbidity classification. Those interested in this history should turn to the account given in the introduction to the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death*, Vol. I, published in Geneva in 1948 as a Bulletin of the World Health Organization, Supplement No. 1. I do, however, want to consider the present status of the international organization dealing with health statistics and its bearing on the subject we are considering.

Following the pattern that had been in operation for many years, the government of France called, in April, 1948, a meeting composed of delegates from twenty-nine countries. The purpose of this meeting was the sixth decennial revision of the *International List of Causes of Death*. The conference not only revised the list and adopted a combined morbidity and mortality list but it developed out of its experience of nearly one hundred years procedures that were felt to be most favorable for strengthening international coöperation in this field.

Recognizing the importance of the United Nations and the organizations associated with it, the Paris Congress concluded that the World Health Organization should take over the problem of health statistics at the international level. To implement this idea, they recommended to The World Health Assembly

"the establishment . . . of an *Expert Committee on Health Statistics* entrusted with the study of problems in the field of health statistics including recording of births, diseases and deaths;
"development of the statistical service of the World Health Organization to such technical competence as to enable it not only to carry out the statistical functions within the Organization and to implement the recommendations of the Expert Committee on Health Statistics but also to furnish consulting services to national health administrations and statistical agencies;
"convening, when occasion requires it, of international technical conferences on problems of vital and health statistics;
"coöperation, in the execution of the work above-mentioned, with the interested sections of the United Nations and its Specialized Agencies."

The former decades of work in this field had however shown the weakness that came from the fact that there was not sufficient activity and interest in this problem within the individual nations. Two recommendations were therefore formulated with the definite intent of establishing a structure so that workers in the field of health statistics throughout the world might play a more active part in the international aspects of their job. These were:

"The establishment by the different Governments of national committees for the purpose of coördinating statistical activities within the country, and to serve as links between the national medical-statistical institutions and the Expert Committee on Health Statistics of the World Health Organization;
"decentralization of studies of certain statistical problems of public health importance to interested national committees on health statistics and other national agencies with a view to transmission of the results of such studies to the Expert Committee of the World Health Organization for international discussion and utilization."

These recommendations were adopted by the World Health Organization and subsequent to that time at least twenty national committees have been formed. To give you some idea of how these committees work, I should like to mention some of the assignments made at a recent Geneva meeting.

"Influence of the confidential character of medical certification on the accuracy of resulting statistics (Belgium, France, Switzerland);
"Adaptation of the *International Statistical Classification of Diseases, Injuries, and Causes of Death* to the special needs of the Armed Forces (Canada, United States of America);
"Methods of linking together health statistics with other types of related statistics (Canada, United States of America);
"Methods of presentation of statistics of multiple causes of death (Switzerland, United Kingdom, United States of America);
"Cancer registers and statistics (Denmark, France, Norway, Switzerland, United Kingdom);
"Methods for obtaining reliable statistics on the frequency and causes of foetal death (classification of periods of gestation under 28 weeks, classification of multiple causes and methods of certification) (United Kingdom, United States of America);
"Morbidity and mortality from tropical diseases (France, India);
"Problems concerning statistics of malaria morbidity (Ecuador, India, Italy, Venezuela)."

All of these problems are being worked on by the Expert Committee on Health Statistics of the World Health Organization, but they were deliberately assigned to the National Committees in order to encourage decentralized work with widespread participation. It should be clearly kept in mind that the National Committees are not a part of the international structure but are, as their name indicates, really national.

The obligation of the National Committees is to see that all interested agencies in the country have an opportunity

to aid in the developing of any aspect of medical statistics. Each of these National Committees is trying to carry out this obligation in a way suitable to the governmental and social structure of its country. There have been conferences between National Committees in groups of various sizes. All of these have had the effect of stimulating more work at local levels, and providing a channel by means of which any of this work which has international bearing can immediately be brought to the attention of the appropriate groups in the World Health Organization.

A recent meeting of the United States and Canadian Committees was held to consider unity of action in handling morbidity statistics in the civilian and military population, and to explore the possibilities of using hospital statistics for general morbidity purposes.

The World Health Organization has also passed a resolution proposing an international conference of National Committees in 1952.

While these meetings are all directed toward the development of international agreements in the field of health statistics, they are no formal parts of the administrative and governing structure of the World Health Organization. They involve, rather, the meeting of people in various parts of the world who are technically trained and interested in the development of programs which they know to be suitable and practical within their own country.

I can well believe that these National Committees are in some ways a headache to the central administrative structure of the World Health Organization. But it should be recognized that any pattern for developing local interest in centralized affairs is bound to have this effect, and in my opinion it is one of the best technics for keeping a central organization alert and vigorous.

I have dwelt on this illustration because I think it furnishes a pattern that might well be adopted in many other areas of health work. The detailed pattern of National Committees is not necessary, but either that or some analogous procedure should be followed in other fields if local interest is to be developed.

I have been speaking of our responsibility and of ways in which we may strengthen the World Health Organization, even though we are no part of its formal organization. However, similar responsibility falls upon those within WHO itself. If WHO is to avoid the evils of bureaucracy, there must be a constant effort on the part of its administrators to see that their programs do not tend in this direction. As an illustration as to how the World Health Organization may avoid bureaucracy, I should like to turn to another field in which I have great personal interest, that of education in public health. WHO is actively working in this field and among other things they are planning for the organization of a public health school at Geneva. We are all pleased at the prospect of this, and realize that it can greatly strengthen the totality of operations in the field of international health. However, the broad objective of this school will be very important indeed in determining whether or not the school has an ingrowing or a broadening effect on the World Health Organization.

Let us consider three possible general objectives for such a school and weigh their effect relative to the principle I am discussing here. Suppose, first, that the school is designed to train people with the expectation that they will serve in WHO itself. Such an objective, fine as it may be, would I believe tend toward inbreeding and would operate against the principle that I am urging. Suppose, instead, that the school is set up with the idea of drawing together persons from various parts of the world to train them for careers in their own country or WHO as the case may be.

Such a school would become just another school like those at London, Boston, Baltimore, Santiago, Calcutta, etc. It would not therefore exert the special leadership that one has a right to expect of a school under the World Health Organization auspices. But suppose, thirdly, that the school should conceive its rôle as the development of methods of education in the field of public health that would be suitable to various parts of the world and to all stages of the educational process. Such a school, properly organized, would quickly be brought into working relationships with other schools of the world and with educational activities in public health which are not centered in schools but arise in actual operations. The school, therefore, might not only assume a real position of leadership, but it would have a broadening and not an ingrowing effect on the World Health Organization.

I do not wish to imply that these three suppositions represent the only lines along which such a school might be organized, but I do want to call attention to the need for a broad consideration of its objectives.

In making these comments with regard to health work at the international level, I want to be sure to make it clear that I am, in no sense of the word, critical of present work or of past accomplishments. But having a deep belief in the importance to all of us of developing patterns for international work, I have tried to point up the need for stimulating local interest in this work and arranging for local participation. It has been frequently said that health work, being one of the easier areas for international coöperation, might be able to develop ways of carrying out activities that would in the end be useful in other forms of human activity. If this is to come about, it will only do so because we drop the concept that the World Health Organization is a structure run by those within the organization, and realize that it is our organization, and begin to do something about it.

Concert of Effort

"We must agree voluntarily to concert our efforts to this one overriding task. If we do that there can be little doubt that we shall succeed. The non-communist countries together have two-thirds of the world's population, three-fourths of the world's economic productive power, and a potential preponderance of the world's military power. They have the highest standard of living and the greatest ability to help under-developed areas achieve higher standards of living. They have on their side the appeal of independence and of national loyalties. They have the greatest attraction of all—human freedom. With these forces on our side, provided we use them well and wisely, the chances of victory and of peace are good."

Publication 3806, U. S. Dept. of State, "The Task of Today's Diplomacy."

Public Health and the Laboratory*

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DURING the past few years, and particularly during the four years in which I have been an officer of this Section, I have had occasion to hear and discuss many considered and forthright opinions regarding the function and status of public health laboratories, and of laboratory workers, here in North America. It is common knowledge to all of you that laboratory workers have been concerned over what they feel is a tendency to relegate their activities and responsibilities to a secondary role in public health, to assign laboratories a relatively small place either in the design of buildings or in the arrangement of programs—or indeed (as in a recent national health conference) to leave them out of the picture altogether. A further instance of the confused status of laboratory workers is the inconsistency with which public health laboratories have been assigned to a variety of organizational positions in overall public health patterns. Sometimes they are found in the section on preventive medicine, sometimes in the section on environmental sanitation, sometimes in the central administrative bureau, and at other times in a section by themselves. Sometimes these assignments are satisfactory expedients, sometimes they are not. In particular, when the laboratory worker finds himself in the category of a service organization rather than a public health specialty, he has reason to wonder not only whether his role in the advance of public health is being justly recognized, but whether even the talents which he possesses are being adequately employed.

At this point a further doubt frequently crosses his mind, since he is bound to be only too well aware of the fact that a large proportion of his work consists of routine repetitive maneuvers. In a serological laboratory, for example, which may handle in identical fashion as many as 3,000 specimens a day, some consciousness of routine is hardly to be wondered at; and one can only note, with admiration, how much of the pioneer work in this particular field has come out of laboratories in which the burden of routine performance alone would have completely frustrated many a lesser individual than those who were holding positions of responsibility. Nevertheless, the threat of routine as a dominant factor in public health laboratory operation is always present, and recent developments, such as the extension of multiphasic screening programs, have not in any sense lessened this threat. I have known—as some of you doubtless have—of instances in which multiphasic screening programs have been planned, financed, and put in motion, before thought was given as to whether the laboratory would have facilities, personnel, or funds for performing the tests demanded of it.

Such a train of thought, of course, inevitably leads to self-commiseration; and this in turn leads nowhere. Rather it would seem profitable to reëxamine

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the role of the public health laboratory, and consider it with a long view, in relation to its origins, its functions, and its ultimate place in our coördinated society. This role has already been so aptly and illuminatingly described by a former chairman of this Section, that I can do no better than to quote from him as follows:

"Many [public health] laboratories have sprung into existence only because of a practical necessity. They are the diagnostic and analytic laboratories, serving directly the practical health officer in the control of the various agencies that tend toward disease. On the other hand, laboratories devoted solely to investigation in special departments of sanitary science are still rare. But everywhere an effort is being made to turn at least a fraction of the available energy toward the solution of problems continually arising in the routine work of bacteriological and chemical analysis, in order that from time to time we may give the results of this very routine work a truer or at least a more rational interpretation.

"In making this effort several difficulties are encountered. In the routine work of the laboratory, which deals with so much and such varied material, and which constitutes probably four-fifths of the work exacted of laboratories devoted to public health, there is opportunity given for fine inductive reasoning whose results put to the test of experiment may yield very valuable results. Unfortunately, however, either the time for the careful study of the accumulating statistics and facts is wanting, or else the physicians served by the laboratory neglect to furnish the desired data and render the bulk of the material on hand almost worthless. . . .

"Another difficulty arises from the close relation between the laboratory worker in sanitary science and the public. Leaving aside as well known the frequently discouraging encroachments of politics upon the functions and functionaries of the laboratory, there is danger that the genuine scientist may be misunderstood, undervalued and eventually driven out entirely. The history of science convincingly shows that the most far-reaching discoveries are least appreciated at the time of their promulgation, and the same holds true in a lesser degree for the results of investigations of lesser value. . . .

"Let me define a little more minutely what the relation of research to practical sanitary work may be conceived to be. When we are conducting experiments in the laboratory we are studying a certain number of known or controllable interacting factors in order to learn the result of their action. . . The true test of the accuracy of such experimental work is the successful repetition of it by competent men, leading to the same unequivocal results. It follows that whenever uncontrollable factors or such as escape our analysis are present, our result will vary and lack final scientific value. When in the study of public health problems we pass beyond the confines of the laboratory, we enter a quite different field, because we are likely to encounter so many buried links in the chain of causation, and so many known elements which cannot be controlled or eliminated. Hence the larger study of nature's problems must appeal to the laboratory for aid in disentangling the interwoven lines of force which enter into the making of disease. To the undefined factors, we, as laboratory workers, must turn for our subjects of study ever and again. We must bring them together with those we have studied, and thus, by gradually enlarging our sphere of experiment, we slowly but steadily approach the real conditions, those that present themselves in the everyday life of the community and the state. The nearer we approach this limit, the more applicable and hence the more useful our work becomes, either by establishing new, positive facts, or by destroying current but false beliefs." [1]

This broad and penetrating summary of the operations, opportunities, and responsibilities of public health laboratories was presented 50 years ago by Theobald Smith in his address as the first permanent chairman of this Section. I have quoted it at length because it applies so exactly to our present situation that I do not see how it could be improved upon. And I think that we should, at this time, take stock of the factors which Smith recognized so well, which all of us know, and which comprise the various facets of the work in which we are all engaged one way or another. First, I think it is worthy of emphasis that, as Theobald Smith made clear, the laboratory worker is in some ways unique in the field of public health in his habit of experimenting under controlled conditions. Although many of our colleagues have opportunities for experimentation, they are rarely as for-

tunate as the laboratory worker in their chance to control their experiments. This privilege of designing the experiment one wishes to perform is one for which we as laboratory workers should be everlastingly grateful; and it sets the tone and the pace for the nature of our work as a whole, regardless of whether the matters which we study be routine or exploratory in nature. For this reason, in turn, we are perhaps more fortunate than most public health workers in the extent to which we can look forward to finding reliable answers to the problems which we tackle.

Inevitably, however, as we develop and perfect reliable techniques for diagnosis, control, or therapy, these techniques become widely adopted, acquire the nature of routine procedures, and progressively encroach upon the time available for those studies which are likely to hold our greatest interest. It is at this point that our intellectual satisfaction in exploration and discovery may sometimes have to be replaced in large part by the spiritual satisfaction of seeing these discoveries utilized on a large scale. However, this dual activity, with its dual satisfactions, can provide an essential balance in our interests, and it also keeps us aware of that fundamental truth which was clearly seen by Pasteur, as Dubos puts it, that "there are not two forms of science—pure and applied—but only science, and the application of science."[2]

However, it is not always easy to maintain this balance; for not only do we become at times overwhelmed by the amount of continuing routine work required, but we run the danger of falling into that easy point of view which accepts the minor variations of detail in the routine, as a substitute for the adventure of exploring the new. The establishment of well standardized methods for control of milk sanitation, water sanitation, serologic testing for syphilis, examination of food, and many other fields has no doubt represented a tremendous contribution to public health. Nevertheless, it is wise to bear in mind Theobald Smith's warning, that "Crystallized methods are both a safeguard and a danger. They guide us and make our results homogeneous. They may also petrify our modes of thought if we too slavishly adhere to them. We must, in short, bear in mind that all codification of procedures and methods is too much like the fencing in of our ignorance. While the thought that it has been well secured and that it cannot escape may be of great comfort and a means of relaxation to us, it may not advance science or increase its utility."

A few years ago I felt a very real concern at the prospect that our Laboratory Section was becoming too greatly involved in the minutiae of procedure, control, and evaluation. I made no analysis at that time since I had no yardstick for comparison. However, the superb programs which our present secretary has arranged have provided a basis for comparison. I have tabulated the papers in the 1947 program, which I brought together as Section secretary, arranging them in 4 categories, as follows: Administration—9, Interpretation of Findings—7; New Fields of Activity—7; and Methodology (including new techniques, new wrinkles, evaluation or comparison, and the like) 23. A similar analysis of this year's program provides a very healthy and heartening contrast. For, while under administration, interpretation, and new fields the number has about doubled, there are 22 under methods—1 less than 3 years ago.

I think that this trend indicates that the public health laboratory has lost none of its vigor, its alertness, or its interest in exploring new fields and adding to the basic knowledge which is our armamentarium. However, we all need at times to be reminded that such is the case and to realize that, if now and then

we feel frustrated, the fault is in the last analysis our own.

Furthermore, this expanding trend of interests with, for example, its accent on the study and diagnosis of cancer, on the development and control of antibiotics, on the capture and domestication of newly discovered viruses—this trend illustrates again the truism which all of us know but many of us forget—that the laboratory is not a separate entity; it is a point of view.

As laboratory workers we are in the habit of searching for facts; of assessing and evaluating them; of comparing them with other available facts; and of reaching a conclusion on the basis of these facts, regardless of whether the conclusion we reach is desired or not. Once this concept is clearly grasped, then there is little difficulty in understanding how the laboratory, in actual practice, reaches into all branches of sanitary science and public health administration. In an age when greater and greater pressures are put upon public agencies to perform this or that service, or to operate in this or that fashion, it is essential that the operations of public health be carried out with the utmost possible objectivity and in an atmosphere of constant, disinterested evaluation. Such an attitude is, of course, the privilege and the responsibility of all specialties in public health; but laboratory workers, because of their particular training and outlook, can undoubtedly make unusual contributions from time to time in this respect. Thus, functioning not only as scientists but as citizens, we can utilize our training and our talents to the highest degree, and take our place in society in the grand tradition of such predecessors as Huxley, Pasteur, and others, who never lost sight of the fact that there was no fundamental cleavage between science and society. We have chosen to combine in our careers the venturesomeness of the explorer with the philosophical restraint of the scientist and the devotion of the public servant. Seen in this light I think that we could not have made a happier choice.

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Carbon Tetrachloride Fire Extinguishers

A study by the Division of Industrial Hygiene of the Illinois State Department of Health included in the 31st Annual Report recently released recounts an investigation of several deaths that occurred in a trailer fire. The trailer had been equipped with automatic carbon tetrachloride fire extinguishers. The problem was one of determining whether or not phosgene may have been a contributing factor in the deaths.

Through the coöperation of Cook County agencies a simulated fire in a house trailer where two of the automatic carbon tetrachloride extinguishers were installed was undertaken. The extinguishers released carbon tetrachloride on the floor without being directed on to the fire and the solvent fumes were drawn into the combustion chamber of on oil stove and were decomposed with the release of phosgene. Concentrations as high as 150 parts per million were recorded during a seven minute test. It was concluded that the phosgene could well have been a major contributing factor to the cause of death. Accordingly, the installation of automatic fire extinguishers containing carbon tetrachloride in homes or domiciles is considered dangerous.

Diarrhea, Dysentery, Food Poisoning, and Gastroenteritis

A Study of 926 Outbreaks and 49,879 Cases Reported to the United States Public Health Service (1945–1947)

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THE past decade has witnessed a marked revival of interest in gastrointestinal diseases of bacterial origin, which follows a lull initiated by our conquest of typhoid and other enteric fevers as a major public health problem. Although typhoid and its related fevers have decreased in incidence to a point of comparative disappearance, there has been a seemingly progressive rise among vaguer epidemic groups of bacterial enteric disease involving ever-increasing numbers of our population.[1] Clinically and epidemiologically, these groups have been overlapping and confusing, but recent bacteriologic contributions have provided the tools for further progress in the clarification and control of the problem. The discovery of staphylococcal enterotoxin and its role in the production of gastroenteritis, and the recognition and identification of the many species of salmonellae, as well as their distribution in nature, are responsible for this stimulation of interest.

Criticism has been directed toward health agencies for their failure to require the reporting of the hitherto less-recognized bacterial gastrointestinal diseases, and for limiting reporting to "outbreaks" only.[2] It is also suggested that improper and no longer valid diagnostic terminology is employed in those few instances where reporting is required. There can be no doubt that a confusion in terminology can lead only to a confusion in the appraisal of facts. Yet it must be appreciated that the requiring of reporting, and official changes in terminology alone, are inadequate. The practitioner and clinician must reorient their thinking away from the established habitual diagnoses such as "diarrhea, dysentery, and food poisoning," which, in almost all instances, are based on vague non-differential symptomatology, and toward a less-confusing and less-overlapping etiological classification.

In essence, this paper is a study of reports of gastrointestinal disease outbreaks made to the U. S. Public Health Service for the years 1945–1947. These reports are compiled annually by the Milk and Food Branch of the Division of Sanitary Engineering, and are printed in the form of master tables. They comprise the source for the data presented here, and have been studied with reference to the interrelated disease groups mentioned in the preceding paragraph. Emphasis is placed upon the need for a diagnostic terminology based on etiology, the causative organisms involved in these outbreaks, and the relative frequency of such involvement, the incubation periods, vehicles of transmission, seasonal variation, and fatality rates.

DIAGNOSTIC TERMINOLOGY

In the master tables under consideration in this paper, one finds four diagnostic groups—diarrhea, dysentery, food poisoning, and gastroenteritis—as reported to the U.S.P.H.S. by various state and city health departments. These are also terms frequently used in diagnosis by the clinician. Diarrhea is purely a symptomatic term; dysentery is almost synonymous (with usage tending to confine it to association with diarrhea caused by shigellae or amebae); gastroenteritis is an anatomical description of disease which embraces the first two terms, plus at times the additional symptomatology of nausea and vomiting; and food poisoning embraces all three of the previous diagnoses, with some reference to a vehicle for transfer of the causative agent. Increasing knowledge frequently enables us to take what previously had been considered a single clinical picture, albeit vague, and distinguish two or more distinct entities. Occasionally, the opposite occurs, and what have been considered two unrelated disease entities are subsequently shown to be part of but a single picture. It thus becomes necessary to reëvaluate these four diagnostic terms.

One factor which may determine the diagnostic appellation used may be the vehicle of transmission which is held responsible for the particular outbreak. That this is true in a negative fashion may be gathered from the fact that where water is the vehicle in a bacterial gastroenteric disease outbreak, the disease is never called food poisoning but gastroenteritis—obviously due to reluctance to consider water a food (Table 1). (Yet for some inexplicable reason waterborne *chemical* gastroenteritis is *always* called food poisoning.) Where milk and milk products are concerned as vehicles we find a more equitable diagnostic distribution of these two terms. There is apparent also a reluctance to use "diarrhea" as a diagnosis for outbreaks transmitted by these products. Not once was it employed in this respect in the 16 outbreaks which occurred during the three year period under consideration—this despite the fact that "infant diarrheas" were included in this tabulation. The writer has no inkling why this should be so. On the positive side is noticed the tendency, in water-borne gastroenteric disease outbreaks of undetermined etiology, to employ a diagnosis of gastroenteritis as opposed to diarrhea or dysentery (in 55 of 60 outbreaks) (Table 2).

Table 2 represents an effort to determine whether any relationship exists between the diagnostic term used and the determination of etiology for the outbreak. It will be noted that, for the disease "diarrhea," in only 2 of 16 out-

TABLE 1

Distribution by Diagnosis of 987 Outbreaks of Bacterial Gastroenteric Diseases according to Vehicle of Transmission (1945–1947)

	Water Outbreaks		*Milk and Milk Products Outbreaks*		*Foods Other than Milk and Milk Products Outbreaks*		*Vehicle Undetermined Outbreaks*		*Total Outbreaks*	
Diagnosis	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
Diarrhea	4	4.9	–	–	9	1.1	3	6.8	16	1.6
Dysentery	3	3.7	2	3.7	7	0.9	2	4.5	14	1.4
Food Poisoning	–	–	26	48.2	518*	64.2	7	15.9	551	55.9
Gastroenteritis	57	70.4	18	33.2	246	30.4	24	54.5	345	35.0
Paratyphoid	–	–	1	1.9	4	0.5	1	2.3	6	0.6
Typhoid	17	21.0	7	13.0	24	3.0	7	15.9	55	5.6
Totals	81	100.0	54	100.0	808	100.1	44	99.9	987	100.1

* Does not include 13 outbreaks due to mushroom poison.

TABLE 2

Diagnostic Distribution of 926 Outbreaks of Gastroenteric Diseases according to Vehicle of Transmission and Determination of Etiology (1945–1947)

	Water		*Milk and Milk Products*		*Foods Other Than Milk Products*		*Vehicle Undetermined*		*Total*		
Diagnosis	*Probable Etiology Determined*	*Etiology Undetermined*	*Probable Etiology Determined*	*Etiology Undetermined*	*Probable Etiology Determined*	*Etiology Undetermined*	*Probable Etiology Determined*	*Etiology Undetermined*	*Probable Etiology Determined*	*Etiology Undetermined*	*Total*
Diarrhea	1	3	0	0	1	8	0	3	2	14	16
Dysentery	1	2	2	0	7	0	0	2	10	4	14
Food Poisoning	0	0	19	7	297*	221	3	4	319	232	551
Gastroenteritis	2	55	12	6	128	118	3	21	145	200	345
Totals	4	60	33	13	433	347	6	30	476	450	926

* Does not include 13 outbreaks due to plant or mushroom poison.

breaks was the probable etiology determined; that, for the disease "food poisoning," the probable etiology was determined bacteriologically in only 319 of 551 outbreaks (58 per cent); and for "gastroenteritis" in 145 of 345 outbreaks (42 per cent). Only in the case of "dysentery" was there adequate bacteriologic evidence (in 10 of 14 outbreaks) which might lend support to a definite diagnosis. It seems evident, therefore, that with the exception of "dysentery" the terms used as diagnoses in gastroenteric disease outbreaks are not based upon etiology.

A third factor which may enter into the choice of one of the above terms for diagnostic purposes may be the clinical picture of the illness in the patient or the epidemiological pattern which may present itself to the epidemiologist. The author is not aware of any remotely acceptable differentiation along either of these two lines between the four diseases as presented here, and as accepted for reporting to official health agencies at present.

INCIDENCE

Inadequate as our present diagnostic nomenclature is, there are many factors besides terminology which have operated against our securing any approximate estimate of the incidence of the bacterial gastrointestinal syndromes considered here. But a failure to secure a reasonable approximation of the *absolute* incidence does not necessarily mean that no information of any value is obtainable from the data on hand. Information concerning the *relative* incidence of these disease groups to each other, of the relative frequency of the major vehicles of contamination involved in these outbreaks, of the relative frequency of involvement of various bacterial groups and the major food items implicated with them, can be of value in a public health approach toward a proper evaluation of the problem, and as a guide toward the establishment of diagnostic criteria and preventive measures.

In the diagnostic categories with which this paper is concerned, and during the three year period under study, there were reported 987 outbreaks involving 50,819 persons (Table 1). Of these, the enteric fevers (typhoid and paratyphoid) constituted 61 outbreaks (6.1 per cent) and 940 persons (1.8 per cent). The remaining outbreaks and cases are represented by the diarrhea-dysentery-food poisoning-gastroenteritis groups.

Of the 61 enteric fever outbreaks, milk and milk products were responsible for the lowest number (8), and in a

similar number the vehicle could not be determined. Water was the vehicle in 17 of the outbreaks, and foods other than milk and milk products were responsible for the greatest number—28 or 46 per cent (Table 1).

Where the etiology of the 14 dysentery outbreaks was established, in every instance except one the responsible organism was a member of the Shigella genus (Table 5). The method of dissemination of these organisms seems to parallel that of the enteric fevers, milk and milk products being responsible for 2 of the outbreaks, water for 3, and foods other than milk and its products for 7 (50 per cent) (Table 1). Three thousand and fifty-five cases were involved in the 14 outbreaks (Table 3).

TABLE 3

Incidence of Diarrhea, Dysentery, Food Poisoning, and Gastroenteritis, Typhoid and Paratyphoid Fevers, in the United States (1945–1947) *

	Diarrhea		*Food Poisoning and Gastroenteritis*		*Dysentery*		*Typhoid and Paratyphoid*		*Totals*	
Year	*Out-Breaks*	*Cases*	*Out-Breaks*	*Cases*	*Out-Breaks*	*Cases*	*Out-Breaks*	*Cases*	*Out-Breaks*	*Cases*
1945	6	589	268	13,158	4	314	28	467	306	14,528
1946	5	423	301	13,221	5	2,640	11	117	323	16,401
1947	5	3,665	327	15,782	5	87	22	356	358	19,890
Totals	16	4,677	896	42,161	14	3,055	61	940	987	50,819

* Does not include 13 outbreaks (62 cases) of plant and mushroom poisoning.

Sixteen outbreaks of "diarrhea" were reported. The number of cases involved was 4,677 (Table 3). Unlike the dysentery outbreaks, however, the term used for diagnosis depended entirely upon the whim of the reporting physician and agency, the etiological agents having been determined in but 2 of the 16 outbreaks. Milk and milk products were implicated in none of them, 4 being transmitted by water and 9 by foods other than milk and milk products.

It should be noted at this point, that typhoid and paratyphoid fevers are reportable in all states of the United States, but that the other diseases considered here are reportable in no more than one-third of the states. Those who wish to use the data presented here to compare the relative incidence of typhoid-paratyphoid infection with that of the other group of bacterial gastrointestinal diseases must take into consideration two important factors—the greater population covered in the reporting of enteric fevers, and the greater tendency among physicians to report these diseases as compared with the second type. Thus, the ratio of the second group to the enteric fever group will not be 15 to 1 for the number of outbreaks or 50 to 1 for the number of cases involved, but will be several times these figures when population ratios are adjusted and allowances made for greater accuracy in reporting.

Attention must be focused on those outbreaks labeled as food poisoning and gastroenteritis. These numbered 896 of the 926 outbreaks considered in Table 2, and involved 42,161 of the 49,879 cases in the group under primary consideration—i.e., 97 per cent and 85 per cent respectively (Table 3). About 300 such outbreaks are reported each year from no more than 16 states. The rise in number from 268 in 1945 to 327 in 1947 has no statistical significance for this period of time—neither has the slight rise in number of cases involved per annum. The disproportion in the relationship between the percentage of total outbreaks and cases mentioned here is due to the fact that a single "dysentery"

TABLE 4

Incidence of 926 Outbreaks of Diarrhea, Dysentery, Food Poisoning, and Gastroenteritis (1945–1947) by Month of Year, and Major Vehicle of Transmission *

Vehicle	*Jan.*	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Total*
Water	3	2	2	2	5	4	26[a]	9	4	5	0	1	63
Milk and Milk Products	3	3	7	7	3	1	6	4	6	5	2	0	47
Other Foods	60	51	51	57	71	73	82	70	65	79	68	53	780
Total	66	56	60	66	79	78	114	83	75	89	70	54	890
Unknown Vehicles	0	3	1	3	1	2	6	7	3	4	5	1	36

* Does not include 13 outbreaks of plant or mushroom poisoning.
[a] Distributed annually as follows: 1945, 6; 1946, 10; 1947, 10.

outbreak in 1946 was water-borne and totaled more than 2,000 cases, and a water-borne "diarrhea" outbreak involved more than 3,000 cases. Foods other than milk and milk products are responsible as vehicles for almost 86 per cent of the food poisoning and gastroenteritis outbreaks, as compared with about 50 per cent in the diarrhea and dysentery groups.

Table 4 represents an effort to determine the influence of the vehicle of transmission on the seasonal variation. In all groups the incidence of disease outbreaks is less during the colder winter months than during the hotter months. It is worth notice that more than half the water-borne outbreaks occur during the months of July and August, with July predominating overwhelmingly. No valid reason for this can be ascribed by the writer. Early spring to fall represents a plateau for the increase in outbreaks carried by milk and milk products. It is not believed that the drop in May and June has any specific significance. While the disease outbreaks carried by foods other than milk or milk products show a tendency toward increased incidence during the warmer months than the colder ones, the relatively high number of outbreaks occurring throughout the year is worthy of attention inasmuch as the belief is commonly prevalent that such outbreaks are comparatively infrequent and rare in winter. Apparently, nothing could be further from the truth, and the danger from relaxation of preventive measures in the control of these outbreaks during the colder months is emphasized.

ETIOLOGY

Of the 926 outbreaks in the four gen-

TABLE 5

Bacteria Involved in 476 Outbreaks (1945–1947) of Gastrointestinal Disease Reported as Diarrhea, Dysentery, Food Poisoning, Gastroenteritis

	319 Food Poisoning Outbreaks		*145 Gastroenteritis Outbreaks*		*2 Diarrhea Outbreaks*		*10 Dysentery Outbreaks*		*476 Total Outbreaks*	
Bacteria	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
Staphylococci	263	82.2	104	71.8	..	..	1	10.0	368	77.7
Salmonellae	40	12.5	32	20.6	..	..	..	..	72	14.9
Streptococci	24	7.5	10	6.9	..	..	..	..	34	6.9
Shigellae	2	0.6	2	1.4	1	50.0	9	90.0	14	2.9
E. coli	5	1.6	4	2.8	1	50.0	..	..	10	2.1
A. aerobacter	4	1.2	0	..	..	..	..	..	4	0.8
Proteus vulgaris	3	0.9	1	0.7	..	..	..	..	4	0.8
Miscellaneous	2	0.6	3	2.1	..	..	..	..	5	1.0
Totals	343	..	156	..	2	..	10	..	511	..

eral groups under consideration, the bacterial excitant was determined in 478 (Table 5). In some instances two or more unrelated bacteria were isolated. In most instances no information was available as to the source—whether ingested food, vomitus, feces, urine, or blood.

A glance at Table 5 will reveal that with the exception of the dysentery outbreaks, all the bacterial groups were involved regardless of the diagnosis used. Since the bacterial excitant was isolated in only two diarrhea outbreaks, the discussion again resolves itself into a consideration of "food poisoning" and "gastroenteritis."

In order of frequency the bacteria involved in two or more of these outbreaks are: staphylococci, salmonellae, streptococci, coli, shigellae, aerobacter, and *Proteus vulgaris*.

Staphylococci

Staphylococci were implicated in 368 (78 per cent) of all outbreaks—in 82 per cent of the 320 food poisoning outbreaks and 72 per cent of the 146 gastroenteritis outbreaks of known etiology. Only once were they isolated from an outbreak classed as dysentery, and not even once from the "diarrhea" group. The 368 outbreaks involved 14,988 cases (Table 6). Staphylococci caused 5 times as many outbreaks and involved more than 4 times as many patients as the next most frequent group, the salmonellae. Milk and milk-products acted as vehicles for transmission 22 times, and other foods 345 times. Twenty-four (6.5 per cent) of the outbreaks also showed

TABLE 6

Bacteria Involved in 476 Outbreaks of Gastroenteric Disease (1945–1947)

Organism	Total No. of Outbreaks Involved	Total No. of Cases	Vehicles of Transmission for Outbreaks			
			Water	Milk and Milk Products	Other Foods	Unknown
STAPHYLOCOCCI	368	14,988	0	22	345	1
SALMONELLA	72	3,430	0	8	60	4
Group and Species unspecified	26	1,042	–	3	20	3
Group C-Species unspecified	4	122	–	–	4	–
S. typhimurium	16	923	–	4	11	1
S. newport	7	807	–	–	7	–
S. oranienburg	4	65	–	–	4	–
S. montevideo	4	145	–	–	4	–
S. aniegar	2	16	–	–	2	–
S. newington	2	18	–	–	2	–
Others (7)[a]	7	292	–	1	6	–
STREPTOCOCCI	34	1,157	0	2	32	0
Type unspecified	18	341	–	–	17	–
Hemolytic	2	88	–	1	1	–
Hemolytic alpha	2	405	–	–	2	–
Non-hemolytic	2	125	–	–	2	–
S. fecalis	5	122	–	1	4	–
S. viridans	5	76	–	–	5	–
SHIGELLA	14	2,883	2	2	9	1
Species unspecified	1	15	–	–	1	–
S. paradysenteriae	9	2,646	2	2	5	–
S. sonne	3	215	–	–	2	1
S. alkalescens	1	7	–	–	1	–
E. coli	10	302	1	1	8	–
Proteus vulgaris	4	78	–	–	4	–
A. aerogenes	4	52	–	–	4	–
Miscellaneous *	5	819	1	1	3	–
Undetermined	450	19,196	55	13	349	24

[a] *S. copenhagen, S. derby, S. cholerae-suis, S. enteritidis, S. thompson, S. manhattan, S. panama*

* *Pseudomonas Aeruginosa*, Gram-neg. bacilli, Gram-neg. spore-bearer, *B. paracolon, B. fecalis alcaligenes*

TABLE 7

Nature of Mixed Infections in 476 Outbreaks of Four Groups of Gastrointestinal Disease (Diarrhea, Dysentery, Food Poisoning, Gastroenteritis)

Type of Bacteria	(476) Total Number of Outbreaks Involved in	(33) Outbreaks With Mixed Infection No.	%	Other Bacteria Involved
Staphylococci	368	24 *	6.5	17 Strep., 3 Sal., 2 Aerog., 1 Coli *
Salmonella	72	6	8.3	3 Staph., 2 Strep., 1 Mixed Sal.
Streptococci	34	21 *	61.8	17 Staph., 2 Sal., 1 Aerog.*
Shigella	14	0	0.0	—
E. Coli	10	5 *	50.0	2 *Prot. Vul.*, 1 Staph., 1 Aerog.
Prot. vulgaris	4	3 *	75.0	2 Coli *
A. aerogenes	4	4	100.0	2 Staph., 1 Strep., 1 Coli
Miscellaneous	5	0	0.0	—

* Includes 1 outbreak containing Staph., Strep., Coli, *Prot. vulg.*
* Does not include 1 outbreak containing Staph., Strep., Coli, *Prot. vulg.*

other bacterial contaminants—streptococci in 17 instances and salmonellae in 3 (Table 7). While outbreaks due to staphylococci tend to increase during summer and early fall, and fall to a minimum in winter, nevertheless the incidence of such outbreaks during the colder months is much higher than expected (Table 9). The more frequent food items involved in the transmission of these organisms will be discussed later in this paper.

Salmonellae

These organisms seem to follow the same pattern of diagnostic distribution as the staphylococci. Of 72 outbreaks totaling 3,430 cases caused by salmonellae, 40 were termed food poisoning and 32 gastroenteritis. This represents one-fourth to one-fifth the reported incidence of the staphylococcic outbreaks (Table 5). Of the 72 outbreaks, 8 were carried by milk and milk products and 60 by other foods—the vehicle could not be determined in 4 outbreaks (Table 6). In 30 of the outbreaks (42.5 per cent) the species was not determined, but in 4 of these the Kauffman-White group classification was determined as Group C. Of the 42 species which were identified, by far the most frequent was *S. typhimurium*—in 16 outbreaks; second was *S. newport*—in 7 outbreaks; followed by *S. oranienburg* (4), *S. montevideo* (4), and *S. aniegar* and *S. newington* with 2 outbreaks each. In 7 outbreaks 7 other species were involved (Table 6).

Six of the 72 outbreaks (8 per cent) revealed the presence of mixed contamination; in 3 instances with staphylococci and in 2 with streptococci. One outbreak showed two different species of salmonella.

These outbreaks are susceptible to greater seasonal variation than the staphylococcal outbreaks, the highest incidence being reached during the summer months, and the lowest incidence during winter (Table 8).

The Streptococci

Thirty four outbreaks during the three year period may be attributed to streptococci. The pattern of diagnostic terminology follows that of the staphylococci and salmonellae—24 of the outbreaks being called food poisoning and 10 called gastroenteritis (Table 5). In either case, streptococci may be held responsible for about 7 per cent of all the outbreaks in each group. These outbreaks affected 1,157 individuals—having a relative frequency about one-eleventh that of the staphylococci, and almost half the

TABLE 8

Incidence of 897 Outbreaks of Diarrhea, Dysentery, Food Poisoning and Gastroenteritis (1945–1947) by months of year, and attributed etiology

Attributed Etiology	*Jan.*	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Total*
Staphylococci	25	24	23	28	26	32	41	38	32	41	17	18	345
Salmonella	1	2	6	5	6	9	11	6	7	4	8	2	67
Streptococci	2	–	2	1	2	1	–	–	1	1	1	2	13
Shigella	1	1	–	2	1	1	–	–	1	3	–	3	13
E. coli	1	–	–	1	–	–	–	–	–	1	–	2	5
Miscellaneous	–	–	–	2	1	1	1	–	–	–	1	–	6
Mixed	5	2	1	2	2	4	1	1	–	1	2	4	25
Unknown	31	27	28	25	41	30	62	38	36	39	43	23	423
Totals	66	56	60	66	79	78	116	83	77	90	72	54	897

frequency of the salmonella outbreaks. Relative case frequency is about one-fourteenth that of the staphylococci and one-third that of the salmonellae. An important aspect of the above consideration is that 62 per cent of the outbreaks showed the presence of other bacteria (Table 6). Of the 21 outbreaks with mixed contamination, 17 were with staphylococci and 2 with salmonellae (Table 7). Thus, if the streptococci are to be considered as secondary contaminants, with a very questionable etiologic role in these outbreaks, the relative incidence must be little better than a third of the previous estimation. Exact identification of the streptococcus involved was obtainable in 10 of the outbreaks, 5 being attributable to *Streptococcus fecalis* and 5 to *Streptococcus viridans*. Two outbreaks were attributed to unspecified hemolytic alpha strains, and 2 to non-hemolytic strains. No estimate of the seasonal variation of these streptococcus - caused outbreaks is of value because of inadequate information. The seasonal incidence for 13 outbreaks is itemized in Table 8. Of the 34 outbreaks, milk or milk products were the vehicle of transmission in 2, and other foods in 32.

The Shigellae

Shigellae were isolated in 14 of the 478 outbreaks in Table 5. Of the 10 dysentery outbreaks, 9 were due to shigellae and 1 to staphylococci. Of the 5 remaining shigella-caused outbreaks, two each were called food poisoning and gastroenteritis, and one was labeled diarrhea. These 14 outbreaks involved 2,883 individuals (Table 6). In not a single outbreak was a second organism found (Table 7). *S. paradysenteriae* were identified in 9 outbreaks, *S. sonnei* in 3, and *S. alkalescens* in 1 (Table 6). Shigella-caused outbreaks were reported one-nineteenth as frequently as staphylococcal outbreaks and one-fifth as frequently as salmonella. Shigella outbreaks, however, produced one-fifth as many patients as did the staphylococcic, and almost as many cases as the salmonellae-caused outbreaks. These relative frequencies must be modified in order to obtain a more approximate index of relative incidence, inasmuch as shigella-caused disease is reportable in all states, and so comparisons will be three to five times less when adjusted on a population basis.

Of the 14 reported outbreaks, 2 each were transmitted by water and milk or milk products, and 9 by other foods (Table 6).

Seasonal variation in the incidence of shigella-caused outbreaks is noted in Table 8. Too few outbreaks are recorded to draw any conclusions.

TABLE 9

Incubation Periods of 295 Bacterial Outbreaks (14,663 cases) of Definitely Determined Etiology

Incubation In Hours	Staphylococci				Salmonella		Shigella		Streptococci		E. Coli	
	Outbreaks		Cases									
	No.	Cumulative %	No.	Cumulative %	O-B No.	Cases No.	O-B No.	Cases No.	O-B No.	Cases No.	O-B No.	Cases No.
UNDER 1	–	–	–	–	–	–	–	–	–	–	–	–
1–1.9	10	4.3	132	1.4	1	400	–	–	–	–	–	–
2–2.9	30	17.4	2619	31.5	1	3	–	–	–	–	1	30
3–3.9	76	50.5	2274	55.3	–	–	–	–	2	90	–	–
4–4.9	45	70.0	1363	70.4	1	1	–	–	2	6	–	–
5–5.9	15	79.0	764	78.8	–	–	–	–	–	–	1	2
6–6.9	12	81.8	173	80.7	1	6	–	–	–	–	–	–
7–7.9	10	86.0	268	83.6	–	–	–	–	1	34	–	–
8–8.9	6	88.8	124	85.0	1	88	–	–	1	5	–	–
9–9.9	6	91.4	188	87.0	1	40	–	–	1	74	1	6
10–10.9	8	95.0	708	94.9	5	53	–	–	–	–	–	–
11–11.9	2	95.7	121	95.9	1	16	1	7	–	–	1	9
12–12.9	3	97.0	138	97.7	3	122	–	–	–	–	–	–
13–13.9	–	–	–	–	1	33	–	–	–	–	1	195
14–14.9	2	97.8	60	98.4	3	104	–	–	1	400	–	–
15–15.9	–	–	–	–	–	–	–	–	1	20	–	–
16–16.9	1	98.4	12	98.5	2	50	–	–	–	–	–	–
17–17.9	1	98.9	20	98.7	1	120	–	–	–	–	–	–
18–18.9	1	99.3	109	99.8	2	107	–	–	–	–	–	–
19–19.9	–	–	–	–	4	167	–	–	–	–	–	–
20–20.9	–	–	–	–	2	247	–	–	–	–	–	–
21–21.9	–	–	–	–	–	–	–	–	–	–	–	–
22–22.9	–	–	–	–	–	–	–	–	–	–	–	–
23–23.9	–	–	–	–	–	–	–	–	–	–	–	–
24–35.9	1	99.6	5	99.9	6	296	1	22	–	–	–	–
36–47.9	–	–	–	–	5	110	1	90	–	–	–	–
48–59.9	1	100.0	6	100.0	4	321	2	2273	–	–	–	–
60–71.9	–	–	–	–	–	–	–	–	–	–	–	–
72–83.9	–	–	–	–	–	–	1	32	–	–	–	–
84+	–	–	–	–	–	–	–	–	–	–	–	–
Totals	230		9084		45	2284	6	2424	9	629	5	242
Medians	3.9		3.8		18.2	17.9	42.0	53.4	6.0	10.3	9.5	11.7
Interquartile Range	3.1–5.7		2.9–5.6		10.2–22.9	{11.3- {27.5	–		–			

NOTE: There was no significant variation in either incubation periods or ranges of the various species of salmonella from that of the entire group.
O-B = Outbreaks.

E. coli

These organisms may be considered causative agents in 10 (2 per cent) of the outbreaks, 5 of which were called food poisoning, 4 gastroenteritis and 1 diarrhea (Table 5). In these outbreaks 302 individuals became ill (Table 6), and in 5 of the 10 outbreaks other organisms were also isolated—twice with *Proteus vulgaris*, once with staphylococci, once with *A. aerogenes*, and once with 3 other groups (Table 7). The same problem, therefore, presents itself in estimating the relative incidence as in the case of streptococcal outbreaks. We may roughly judge outbreaks due to *E. coli* as one-seventh to one-fourteenth as frequent as salmonella outbreaks and one-fiftieth to one-hundredth as frequent as staphylococcus outbreaks. Of these 10 outbreaks, water was considered the vehicle in one, milk or milk products in a second, and other foods in 8.

Proteus vulgaris

Proteus vulgaris was isolated in 4 outbreaks, 3 of which were termed food poisoning, and the fourth gastroenteritis (Table 5). Seventy-eight cases were recorded in these outbreaks (Table 6). Three of the 4 outbreaks showed mixed contamination, 2 with *E. coli* and 1 with several organisms (Table 7).

Aerobacter aerogenes

A. aerogenes was involved in 4 outbreaks totaling 52 cases (Table 6). All 4 outbreaks were labeled food poisoning. Since all the outbreaks showed the presence of other organisms as well (Table 7), it is inadvisable to evaluate the role of *A. aerogenes* as a causative factor at present.

Outbreaks of Undetermined Etiology

Outbreaks for which no etiology could be determined constitute so high a proportion that attention must be focused upon them. In 450 of 926 outbreaks (49 per cent), no bacterial cause could be found. It has already been shown that, with the exception of dysentery, there was no relationship between the diagnosis used to define the outbreak and the etiology. The outbreaks which lend themselves best to bacteriologic study are those transmitted by milk and milk products—the etiology having been determined in 72 per cent. The poorest of the group are those transmitted by water, the etiology being determined in only 6 per cent of all water-borne disease outbreaks.

INCUBATION PERIODS

Since, with the possible exception of dysentery, the other diagnoses permit of no differentiation, and with the ever-increasing recognition of the need for a differentiation based on etiology, the incubation periods were determined for the five commonest bacterial groups involved in these outbreaks. The mean incubation period was determined for those outbreaks in which such periods were reported. In order to decrease the possibility of error, those outbreaks were omitted from our tabulation in which the etiology was expressed as "possibly" or "probably" or qualified by a question mark (?) in the reports studied.

The incubation periods are tabulated in Table 9 and represent 295 bacterial outbreaks involving 14,663 cases. The median incubation periods were determined for each bacterial group, both by outbreak and case distribution.

The median incubation period for 230 staphylococcic outbreaks was 3.9 hours, and for the 9,084 cases was 3.8 hours. The interquartile ranges were 3.1–5.7 and 2.9–5.6 hours respectively.

For 45 salmonella outbreaks the median incubation period was 18.2 hours, and the median for 2,284 cases was 19.9 hours. The interquartile ranges for each group were 10.2–22.9 hours and 11.3–27.5 hours respectively.

In the 6 shigella outbreaks, comprising a total of 2,284 cases for which incubation periods were stated, the medi-

ans were 42.0 hours for the outbreaks and 53.4 hours as determined by case distribution.

Nine outbreaks attributed to streptococci showed an incubation period median of 6 hours, and for the 629 cases involved, the median was 10.3 hours.

For 5 *E. coli* outbreaks involving 242 patients the median for the outbreaks was 9.5 hours, and for the cases 11.7 hours.

The outbreaks of known etiology were regrouped to show their distribution at various incubation period levels (Table 10). Of 210 such outbreaks in which the incubation periods were less than 8 hours, 198 were due to staphylococci. This represents 94.3 per cent of the group. 95 per cent of all staphylococcic outbreaks occurred within 11 hours of the ingestion of the contaminated food (Table 9). Only 4 (3 per cent) of the 210 outbreaks which occurred during the 8 hour incubation interval were due to salmonellae, but there is a steady increase in the distribution of salmonellae outbreaks at the later incubation intervals so that at 16–60 hours they are responsible for 26 of 35 outbreaks (74 per cent) of known etiology occurring during this period. The 9 outbreaks attributed to streptococci and the 5 attributed to *E. coli* seem evenly distributed among the incubation period groups ranging from 0 to 16 hours. Of the shigella caused outbreaks (6), with the exception of 1, the incubation periods were fairly equitably distributed within 1–4 days, and constituted a continuously higher percentage of all outbreaks of known etiology which occurred during this interval.

VEHICLES OF TRANSMISSION

For those who may be interested in the annual incidence of outbreaks and the type of contaminated vehicle involved, Table 11 is presented. Since staphylococci have been shown to be responsible for most outbreaks in which the bacterial agent was determined, these outbreaks were tabulated separately. The general information which may be gathered from this table has been mentioned at other points in this article. Worthy of emphasis is the picture presented by water-borne outbreaks, in that, only in the extreme minority of instances, are the responsible bacteria found, and the ever-present danger of widespread dissemination of disease through this vehicle to which the greatest number of the population is exposed (16,408 cases in only 64 outbreaks).

Table 12 shows the frequency of involvement of the contaminated vehicles, broken down into specific food items, in 392 bacterial gastroenteric disease outbreaks which were reported in the four groups under study, and distributed according to etiology. Where more than one contaminated vehicle was mentioned as responsible, each item was credited accordingly. Where a single contaminated vehicle was mentioned which could be reduced to two or more of the food items listed in the table, it was so done.

There were 378 food items involved in 304 staphylococcic outbreaks. The five most common food groups which were implicated are:

1. Meat products—35.5 per cent of the outoutbreaks
2. Bakery products—35.3 per cent of the outbreaks
3. Poultry—22.0 per cent of the outbreaks
4. Potatoes—8.6 per cent of the outbreaks
5. Milk or milk products—6.6 per cent of the outbreaks

Of the meat products, ham was the greatest single offender (in 50 of 108 outbreaks). Pork and tongue were responsible for no greater proportion of the outbreaks than any of the other meats and so were not itemized separately. Of the bakery products, cream and custard pastries were implicated in 92 of 107 outbreaks (86 per cent). The distribution of involved poultry prod-

TABLE 10

Distribution of 297 Outbreaks of Known Etiology at Various Incubation Period Intervals in Hours

Organism	0–3.9		4–7.9		8–11.9		12–15.9		16–19.9		20–23.9		24–35.9		36–47.9		48–59.9		60–71.9		72–83.9		Total	
	Number of O-B	Per Cent of Interval Total	Number of O-B	Per Cent of Interval Total	Number of O-B	Per Cent of Interval Total	Number of O-B	Per Cent of Interval Total	Number of O-B	Per Cent of Interval Total	Number of O-B	Per Cent of Interval Total	Number of O-B	Per Cent of Interval Total	Number of O-B	Per Cent of Interval Total	Number of O-B	Per Cent of Interval Total	Number of O-B	Per Cent of Interval Total	Number of O-B	Per Cent of Interval Total	Number of O-B	Per Cent of Interval Total
Staphylococci	116	95.2	82	93.3	22	62.8	5	31.2	3	25.0	0	–	1	12.5	0	–	1	14.3	0	–	0	–	230	77.4
Salmonella	2	1.6	2	2.3	8	22.9	7	43.8	9	75.0	2	100	6	75.0	5	83.3	4	57.1	0	–	0	–	45	15.2
Streptococci	2	1.6	3	3.4	2	5.7	2	12.5	0	–	0	–	0	–	0	–	0	–	0	–	0	–	9	3.0
Shigella	0	–	0	–	1	2.8	0	–	0	–	0	–	1	12.5	1	16.7	2	28.6	0	–	1	100.0	6	2.0
E. coli	1	0.8	1	1.1	2	5.7	1	6.3	0	–	0	–	0	–	–	–	0	–	0	–	–	–	5	1.7
Miscellaneous*	1	0.8	0	–	0	–	1	6.3	0	–	0	–	0	–	0	–	0	–	0	–	0	–	2	0.7
Total	122	100.0	88	100.1	35	99.9	16	100.1	12	100.0	2	100.0	8	100.0	6	100.0	7	100.0	0	–	1	100.0	297	100.0

* Includes *B. faecalis alcaligenes*, and Gram-neg. spore-bearer

TABLE 11

Incidence of Outbreaks and Cases Attributable to Staphylococci, Other Bacteria and Undetermined Causes According to Vehicle Involved (1945–1947)

Organism	Year	VEHICLE: Water		Milk		Other Foods		Vehicle Unknown		Totals	
		Out-Breaks	Cases	Out-Breaks	Cases	Out-Breaks	Cases	Out-Breaks	Cases	Out-Breaks	Cases
Staphylococci	1945	..	..	7	458	104	5,706	..	..	111	6,164
	1946	..	..	6	346	113	4,122	..	..	119	4,468
	1947	..	..	9	60	128	4,292	1	4	138	4,356
	1945–7	..	..	22	864	345	14,120	1	4	368	14,988
Other Known Groups	1945	1	195	8	1,003	33	1,120	1	31	43	2,349
	1946	3	2,529	3	23	36	2,068	..	..	42	4,620
	1947	..	..	3	76	42	1,208	4	343	49	1,627
	1945–7	4	2,724	14	1,102	111*	4,396	5	374	134	8,596
Undetermined	1945	15	5,465	5	126	106	4,162	7	543	133	10,296
	1946	27	1,942	3	242	119	4,008	4	293	153	6,485
	1947	18	5,577	5	54	121	5,811	18	1,029	162	12,471
	1945–7	60	13,684	13	422	346	13,981	29	1,865	448	29,252
Totals	1945–7	64	16,408	49	2,388	802	32,497	35	2,243	950	52,836

* Does not include 9 duplications of mixed contaminants listed in Table 6

NOTE: 1. Outbreaks and cases with mixed contaminants are listed individually in each group except where stated (*) above.
2. Outbreaks due to mushroom poisoning are not listed.
3. No estimates of cases were reported with two outbreaks of undetermined etiology.

TABLE 12

*Frequency of Involvement of Various Contaminated Vehicles in 392 Bacterial Enteric Outbreaks * Caused Unquestionably by a Single Organism*

		Meat Or Meat Products				Bakery Products				Potatoes			Egg		Fish								
Organism	*No. of Outbreaks*	*Ham*	*Other*	*Total*	*Poultry*	*Creamed* [a]	*Custard* [a]	*Other*	*Total*	*Salad*	*Other*	*Total*	*Noodle Macar. Spagh.*	*Other*	*Salad or Creamed*	*Other*	*Total*	*Vegetables*	*Water*	*Milk and Milk Products*	*Shellfish*	*Miscellaneous Vehicles*	*Unknown Vehicles*	*Total*
Staphylococci	304	50	58	108	67	68	24	15	107	21	5	26	9	14	3	7	10	6	0	20	1	3	7	378
Salmonella *	54	2	13	15	10	7	1	0	8	1	0	1	0	4	1	1	2	7	0	8	1	3	5	64
Shigella	13	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	9	13
Streptococci	11	0	2	2	4	1	0	1	2	2	0	2	0	0	0	0	0	0	0	1	0	0	0	11
E. coli	5	0	0	0	1	1	0	2	3	0	0	0	0	0	0	0	0	1	1	0	0	0	0	6
Miscellaneous †	5	0	1	1	1	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	0	0	0	5
Total	392	52	75	127	83	77	25	18	120	25	5	30	9	18	4	8	12	14	4	31	2	7	21	477

* Includes 1 mixed outbreak involving 2 species of salmonella.

† *B. paracolon, Proteus vulgaris, Pseudomona aeruginosa, B. faecalis alcaligenes,* Gram-negative bacillus.

[a] Although basic ingredients are similar, this breakdown is made in order to conform to common usage.

ucts was almost equal between chicken and turkey.

Almost all (96 per cent) of the ham-borne outbreaks were staphylococcic. Outbreaks transmitted by the creamed custard bakery products were staphylococcic 90 per cent of the time. Contamination with staphylococci occurred in 86.5 per cent of all potato-borne outbreaks, and all 9 of the egg-flour combination of noodles, spaghetti, and macaroni were responsible for staphylococcic outbreaks only. For proper evaluation, however, it must be borne in mind that staphylococci were responsible for 77.5 per cent of the 392 outbreaks which are considered in Table 12.

Fifty-four of the 392 outbreaks (13.8 per cent) were due to salmonellae. The most common food groups acting as vehicles in these infections were:

1. Meat and meat products—27.8 per cent of the salmonella outbreaks
2. Poultry—18.5 per cent of the salmonella outbreaks
3. Bakery products—14.8 per cent of the salmonella outbreaks
4. Milk and milk products—14.8 per cent of the salmonella outbreaks
5. Vegetables—13.0 per cent of the salmonella outbreaks

No particular meat product plays a dominant role as a vehicle in salmonella infections as ham does in meat-borne staphylococcic disease. While poultry replaces bakery products as second in order of frequency, it does not carry a disproportionate share of salmonella infection (12.5 per cent of all poultry-borne outbreaks). Creamed-custard bakery products carry a normal share of salmonella outbreaks (9 per cent), while other bakery products rate extremely low in frequency of involvement, as does ham. It would seem that potatoes and the egg-flour products (noodles, macaroni, etc.) rarely carry salmonella infections. Although almost all the vegetable-borne outbreaks involved staphylococci and salmonellae in approximately equal numbers (6 and 7 respectively), yet for the salmonellae it would seem that vegetables play a more important role as vehicles (13 per cent of all salmonella outbreaks) than for staphylococci (2 per cent of all staphylococcal outbreaks). About 26 per cent of the milk-borne gastroenteric disease outbreaks considered in this table were due to salmonellae; 65 per cent to staphylococci.

In 9 of the 13 shigella caused outbreaks the vehicle of transmission could not be determined. In the other 4 outbreaks, water was the vehicle in 2 instances and milk in 1.

Of 11 gastroenteric disease outbreaks which were caused by streptococci, poultry was the vehicle in 4; meat prod-

TABLE 13

Fatality Rates

Organism	*No. of Outbreaks*	*No. of Cases*	*No. of Deaths*	*Age or Age Group*	*Fatality Case Ratio*
Staphylococci	11	251	11	Not stated–6, New-born–1, 13 Mos.–1, 4 yrs.–1, 51 yrs.–1, 70–1	4.4
Salmonella	4	142	4	Not stated–3, New-born infant–1	2.8
Shigella	2	22	2	Not stated–2	9.1
Pseud. aeruginosa	1	468	9	Not stated–9	1.9
Unknown	9	262	15	Not stated–6, infants–7, child–1, 73 yrs.–1	5.7
Total	27	1,145	41		

ucts, bakery products and potatoes were involved twice each, and milk and milk products once.

Three of the 5 *E. coli* outbreaks were transmitted by bakery products.

FATALITY RATES

Forty-one deaths were reported in 27 outbreaks, with a total of 1,145 cases. Based on these outbreaks, the case-fatality rate was highest among the shigella caused diseases—9.1; second highest among those outbreaks of undetermined etiology—5.7; third in staphylococcal outbreaks—4.4; and 2.8 in salmonellae outbreaks. There were 9 deaths reported in a single large outbreak attributed to *Pseudomonas aeruginosa* with a rate of 1.9.

Of the 41 reported deaths, information concerning the age or age group was not given in 26. Of the remaining 15, 10 deaths were in infants 13 months of age or under, 2 in children under 5 years of age, and 3 in adults, one of whom was 51 years old and two over 70 years of age (Table 13).

DISCUSSION

Much space in this article has been devoted to the presentation of evidence showing the complete inadequacy of diagnostic terminology as commonly used today for bacterial gastrointestinal diseases. We have shown that such diagnoses as diarrhea, food poisoning, gastroenteritis, and dysentery, do not refer to clinical entities. Neither is such usage based upon any differential epidemiological pattern or any bacteriologic foundation. Even "dysentery" is no exception to this generalization—"Clinical dysentery may be caused by (1) *Shigella*, (2) *Salmonella*, (3) *Endamoeba histolytica*, (4) *Proteus morganii*, (5) paracolon bacilli, and (6) a virus."[3] And, "the term 'dysentery' is frequently used by the public—and at times by the medical profession—to refer to any severe diarrhea . . . the use is unfortunate as it tends to classify together too many disease conditions of very different etiology."[4] Both these quotations are from widely used recently revised standard reference sources.

In a previous article,[5] referring particularly to staphylococcal food poisoning, the author stressed the need for additional data. The information presented in this paper has been available for several years—all that was required was a study of such data based upon etiology. The major stimulus toward an understanding of the food-borne outbreaks of the various gastroenteritides was the discovery by Dack of staphylococcal enterotoxin, and the recognition of a definite epidemiologic pattern in the nature of the outbreaks which resulted from its ingestion. The full value of this clarification has never been completely utilized because of a failure to appreciate the relative incidence of staphylococcal outbreaks compared with those of other bacterial origin. We have yet to find a description of the incidence of staphylococcal food-borne outbreaks which did not, in essence, state that they were "*probably*" the most frequent of all bacterial food-borne outbreaks of gastrointestinal disease. We have shown in this paper that they are responsible for at least *three-fourths* of all such outbreaks—and are reported with 4 to 5 times the frequency of the next most common offenders—the salmonellae.

The term "food poisoning" should long since have been abandoned to the public by the medical profession, and "diarrhea" and "dysentery" recognized merely for what they are—descriptive indications of disease due to varying etiology. We should like to see the universal adoption of the term "gastroenteritis" modified by the use of the etiologic agent. Over the past few years, there has been a tendency to differentiate bacterial "food poisoning" into two types, the enterotoxic (at present

staphylococcal only) and the infectious (salmonellae, streptococci, etc.). The substitution of "gastroenteritis" for "food poisoning" and the wider use of this classification would be a further step in the right direction. The terms "salmonellosis" and "shigellosis" are being interpreted by many as synonymous with acute salmonella gastroenteritis and shigella gastroenteritis (bacillary dysentery) respectively. In view of the protean nature of these infections, this adds more confusion to an already well confused subject. In many cases, food poisoning, salmonellosis, and shigellosis are listed as separate reportable diseases —a more recent trend toward unnecessary complication in view of overlapping. To avoid this, a redefinition of "food poisoning" is required and this has been accomplished by the A.P.H.A. which limits its use to bacterial intoxications due to staphylococci and *B. botulinus*.[6]

Preventive medicine, perhaps more than any of the other branches of medicine, depends essentially on the coöperation and integration of the medical sciences and specialties in all fields. The base for this pyramidal organization is the general practitioner. With the exception of outbreaks of gastrointestinal disease occurring in institutions, all others as well as endemic cases, come first, and usually only, to his attention. He must not dismiss these short-lived illnesses as "summer diarrhea," "food poisoning," or "intestinal flu or grippe." He is best equipped to supply us with the necessary clinical information which may enable us to differentiate variations in the clinical pictures of these disorders. Mailing tubes for fecal specimens should be an integral part of his equipment, and such specimens should be secured before the establishment of any therapeutic regime, particularly with the antibiotics.

This study of the general incidence of gastroenteric disease outbreaks speaks well for the effectiveness of sanitary measures in the control of water- and milk-borne diseases. However, the large number of cases which occasionally arise from water-spread disease outbreaks emphasizes the ever-present danger from a relaxation of such measures of control, as well as the need for an extension of such facilities. This need, particularly in respect to the private and semi-public supplies of institutions and resorts in rural areas, has been well demonstrated by the recent study of Eliassen and Cummings.[7] That the contaminating organism could not be isolated in 55 of the 57 water-borne outbreaks in this series focuses our attention upon the advisability of a re-evaluation of present methods and techniques in such efforts.

Since foods, other than milk and its products, are demonstrated as the major vehicles responsible for 90 per cent of our present gastroenteritis problem, the need for concentration on this aspect of control becomes apparent. This problem ultimately resolves itself into a consideration of control measures against staphylococcal and salmonella gastroenteritis.

It is believed that, although in almost half the reported outbreaks the responsible bacterial agent was not determined, there would be no significant change in the relative etiologic distribution of such outbreaks if the agent had been identified. In many instances failure is due to the delayed reporting of these outbreaks by the physician, or to a complete lack of reporting, so that they come to the attention of the health authorities via newspapers or radio much too late for proper epidemiologic study. It is not believed, as has been too frequently stated in the literature, that the incidence of food-borne outbreaks is increasing. The apparent increase has been due to two factors—an increase in the number of states requiring reporting and improvement in diagnosis. This is well exemplified by

Felsen's [8] study of the apparent rise in incidence of bacillary dysentery in this country from approximately 1,000 reported cases in 1933 to 38,000 cases in 1944. He shows that this apparent rise in the incidence of bacillary dysentery is due largely to the diagnosis of previously unclassified diarrhea. We are tempted to employ our previous estimates of relative incidence, and state that on such a basis the probable number of cases of staphylococcal enterotoxin gastroenteritis in 1944 would be between 570,000 and 1,000,000! In any case the vast number of mild, subclinical, undiagnosed, and therefore unreported, cases would not be included.

Staphylococcal Enterotoxin Gastroenteritis

Almost 80 per cent of all reported bacterial outbreaks of gastroenteritis belong to this group. We must differentiate this type from the infectious forms, inasmuch as the enterotoxin is preformed in the contaminated food—although it must be understood that not all staphylococcal strains are capable of producing such enterotoxin. It is the physiologic action of the enterotoxin which accounts for the "explosiveness" of these outbreaks.

The median incubation period as shown in this study, and which conforms with all previous reports,[9-18] is about 4 hours, although some cases may have their onset immediately upon ingestion of the contaminated food. Almost 90 per cent of those partaking of the implicated food will have symptoms within 8 hours after ingestion. This point is of the utmost value in differentiating between the various epidemic forms of gastroenteritis, both clinically and epidemiologically. In this study, 95 per cent of all outbreaks of determined etiology, with incubation periods of 11 hours or less were of staphylococcal origin. Where outbreaks falling within the ranges mentioned seem to be due to other bacteria, due scepticism must prevail. Dack [9] has well covered the probable errors in this respect and states, "many bacteria other than staphylococci have been assigned as causative agents in . . . outbreaks that were undoubtedly caused by staphylococcus enterotoxin. Although it is possible that other agents may simulate staphylococcus food poisoning, there has never been a clearly proven example of such an exception." The only epidemiologic exception, and therefore a valuable differential point, might be those rare instances of outbreaks due to food-borne chemical poisons both organic and inorganic, or ingestion of the uncommon toxic varieties of plants and animals.

Further differentiation of this form of gastroenteritis from other bacterial forms awaits the interest and contribution of the clinician and practitioner. Descriptions characterized by "nausea, vomiting, and diarrhea" are completely inadequate for the differential diagnosis of even the more or less typical cases. To our knowledge, the first comprehensive presentation of symptomatology capable of evaluation was made as recently as the present year.[5]

The present study confirms accepted concepts concerning the importance of ham as a food item of transmission in these outbreaks. Other meats such as pork and tongue are apparently comparatively unimportant. Creamed and custard pastries are responsible for most of the outbreaks due to bakery products (86 per cent). The importance of poultry products has been somewhat underestimated. It would seem that public health emphasis on the preparation, handling, and refrigeration of these three items alone could cut the incidence of this illness in half.

Since we have shown that the incidence of this form of gastroenteritis is still relatively high in the colder months, such measures as are taken must not be

restricted to the warmer months alone. Everyone handling food who has superficial skin, eye, ear, nose, and throat lesions harboring enterotoxin producing staphylococci is a potential source of contamination. Studies show that the incidence of staphylococci in the nose and throat of the general population is quite high, ranging from 76.3 to 86.1, and that staphylococcal food outbreaks are associated with a high enterotoxin producing staphylococcus carrier rate among incriminated food handlers.[17]

The prevailing concept that enterotoxin gastroenteritis, because of the rapidity of recovery among affected individuals, need not be taken seriously by the practitioner, is quite erroneous. While reported fatality rates vary widely,[16, 19] it would seem that the most important factor is the age and debility of the patient. As with other forms of acute gastroenteritis, the case fatality rate is high among infants and the aged. This has not been generally recognized for staphylococcal gastroenteritis, and while our own tabulation may be inadequate, it must certainly be considered highly suggestive and worthy of additional investigation. Until evidence is presented to the contrary, however, it would seem advisable for clinicians to keep patients of both extremes of age under careful observation during an attack.

Salmonella Gastroenteritis

The establishment of Salmonella Centers throughout the country, and the identification of approximately 170 species of these organisms, most of them pathogenic to both man and animals, though a fascinating study to the bacteriologist and epidemiologist, have given this form of gastroenteritis an importance in relation to staphylococcal intoxication which is not justified by its comparative incidence. We have shown on the basis of available evidence and on the assumption that most other factors are equal, that reported outbreaks of salmonella gastroenteritis are one-fourth to one-fifth as frequent as staphylococcal, even though they represent by far the second most common form. While these organisms may produce disease of almost any of the body tissues (and this is true of most pathogenic bacteria), the gastrointestinal tract is the most frequent and favorite site.

The incidence of the different salmonella species varies in different regions of this country, and in other countries as well. Nevertheless the predominating specie is *S. typhimurium*, followed by other members of the Kauffmann-White C group.[2, 14, 20, 21] In our series of reported salmonella outbreaks approximately 25 per cent were identified as due to *S. typhimurium*. This conforms closely to other reported isolations.[2, 20, 21]

The incubation period mean in this study is 18.2 hours for the outbreaks and 17.9 hours for the cases. The interquartile ranges vary between 10.2 hours and 27.5 hours. Since there is no recognized difference in the clinical pattern presented by all these gastroenteritides (all being described by varying degrees of nausea, vomiting, fever, diarrhea, abdominal pains and cramps, etc.), the difference in the incubation periods presented by these various forms becomes the most important differential feature. It is obvious that staphylococcic outbreaks are much more "explosive" in epidemiological pattern than those due to the salmonellas. In many instances the attending physician will be called to the site or "affair" at which the contaminated food had been eaten in staphylococcal gastroenteritis, while in most instances of the salmonella type other meals are likely to have intervened between the ingestion of the contaminated food and the onset of illness. The history will show that in many instances the patient is aware of others who had participated in some previous meal who

were also ill. While various species of salmonellae may vary in their pathogenicity to man, we found no significant variation in either incubation periods or ranges of the more common species encountered in this study. *S. choleraesuis* which seems to be the most virulent of the group for man was only encountered once during these outbreaks. While *S. enteritidis* [14] and *S. choleraesuis* [3] are stated by some to occur next in frequency to *S. typhimurium*, in this study *S. newport*, *S. oranienburg* and *S. montevideo* were isolated next in the order of frequency mentioned. This is more in accordance with the recent work of Seligmann, et al.,[2] Edwards, et al.,[20] and Felsenfeld and Young [21] in this country.

The distribution of the salmonellae is universal, and their natural habitat seems to be the intestinal tract of man and animals. They have been found in horses, cattle, sheep, swine, fowl, rodents, and dogs and cats. They have been isolated from eggs and egg powders. Recent studies tend to show that 2–5 per cent of apparently healthy individuals are carriers of *Salmonella*,[2, 19] and that the human carrier is the most common vector of the infection in man. Household pets have been implicated in the serious choleraesuis infections in children, and rats and mice as sources in the contamination of foods. Frequent vehicles of transmission have been listed as water, meats, poultry, eggs including spray-dried (used for salad dressings and desserts), cake fillings and pastries.[3] This study shows that meat products, fowl, bakery products (especially creamed), milk and milk products, vegetables, and eggs are the most frequent vehicles in the order listed. Not in a single outbreak, however, was water listed as a vehicle of transmission. Edwards, *et al.*, believe that fowls constitute the greatest reservoir of the bacteria in this country, and that a high incidence of a given type in fowls in a certain locality is accompanied by a high incidence of the same type in man.[20] They emphasize, moreover, that "both normal human carriers and animal reservoirs of infection have their place in the epidemiology of salmonellosis, and each should be given due consideration."

Our study of the seasonal variation of these outbreaks shows a marked decrease in salmonella gastroenteritis during the colder months and a peak incidence during the summer. This seems to indicate that the human carrier is not as great a source of infection or contamination as in the case of staphylococcal gastroenteritis, and to point to the value of refrigeration as a means of control. The interesting study of Felsenfeld and Young,[21] demonstrates also the value of adequate meat and fowl inspection in reducing the danger of salmonella disease.

Previously published reports of fatality rates in salmonella disease vary from 1.4 to 5.1 per cent.[2] The rate in this series is 2.8. In view of the particular affinity of salmonellae for the younger age groups, one is inclined to expect higher fatality rates than those cited. This is true for infection with *S. choleraesuis* in which Seligmann, *et al.*, mentions a rate as high as 26 per cent.[2]

Shigella Gastroenteritis

Bacillary dysentery may be considered synonymous with *Shigella* gastroenteritis. While we are becoming aware to a greater extent of the increased prevalence of this disease as compared with previous estimates,[8] it must be recalled that such prevalence is far below that of the staphylococcal and salmonellae forms. The predominant role of *S. paradysenteriae* found in this study as the cause of this form of gastroenteritis, followed by that of *S. sonnei*, is corroborated by the work of Weil [22] in which these two strains constituted at least 90 per cent in all sections of the country studied.

The median incubation period for our series was 42 hours for the outbreaks and 53.4 hours for the cases. Neither the epidemiologic pattern nor the clinical onset in patients (prodromal period) should be confused with the staphylococcal or salmonella types of gastroenteritis—explosive, less explosive, and non-explosive should describe both these features in these three diseases respectively.

Unlike the salmonellae, man is the sole source of the shigella organisms. As many as 9 asymptomatic or convalescent carriers have been found for each current case of bacillary dysentery.[23] The carrier state may persist for years,[24] and where poor excreta disposal exists, flies may become important vectors in the transmission of the bacteria to food, and the long viability of the organisms in water (6 months), and inapparently soiled clothing for many days increases the problem of control.

In too many outbreaks in our series, the vehicle of transmission could not be determined. This is to be expected in view of the long incubation period. In those instances where the vehicle was determined, water, milk, and meat products were involved.

Shigellae disappear rapidly from stools, making it advisable to use Bang-xang and Eliot[25] citrate desoxycholate mixture in buffered physiological saline in the medium, and in the preservative particularly for shipment. Proper collection and selection of the specimen is extremely important in the isolation of these organisms. Serologic diagnosis may be of value—but it must be remembered that agglutinins are produced late in the disease and, inasmuch as normal individuals may show titers of 1:80 to 1:320, only a series showing rising titers at this stage of disease may be considered diagnostic.[26]

Streptococcal Gastroenteritis

Thirty-four outbreaks were studied in this presentation, of which 21 showed mixed contamination; 17 of these mixed outbreaks showed the presence of staphylococci. The incubation period medians of 6 hours for the 9 unmixed outbreaks and 10.3 hours for the cases are well within the ranges quoted by Dack[16] in his presentation of this form of gastroenteritis. The alpha streptococci, Lancefield Group D, (*S. fecalis*) are the types previously implicated as probable causes of gastroenteritis, particularly when found in overwhelming numbers in the contaminated foods. An equal number of outbreaks in this series were attributed to *S. viridans*, of the Lancefield N Group.

In evaluating the role of the streptococci in the production of acute gastroenteritis, we should like to quote Zinsser[3] to the effect that "hemolytic streptococci are preëminently secondary invaders superimposed on other bacterial . . . diseases" and add "superimposed on other bacteria-contaminated foods." Acute gastroenteritis should not be attributed to these organisms when mixed contamination with other pathogens is found, and until careful and exhaustive bacteriologic study has failed to reveal the presence of other more likely pathogens.

Poultry predominated as the vehicle of transmission, being involved twice as frequently as meat, bakery products, and potatoes.

No fatalities were reported in these outbreaks.

Gastroenteritis Due to Other Bacteria

In discussing the role played by other bacteria as factors in the production of acute gastroenteritis, the normal intestinal flora of man must briefly be reviewed. It must be recalled that the bacterial flora of the canal varies at different ages, with health and disease, and with diet. In spite of this, valid generalizations may be made. For example, *E. coli* constitutes 75 per cent of the intestinal bacteria of adults. In

breast-fed infants, *A. aerogenes* and *E. coli* are normally found in the lower intestine, and enterococci in the upper small intestine. Anaerobes predominate in the cecum and rectum. Artificially fed infants show an increase in the predominance of the coli-aerogenes group.

During the three year period encompassed in our study, 10 outbreaks of *E. coli* gastroenteritis were reported. Half of these outbreaks showed contamination with other organisms. Of the 5 mixed outbreaks concerned, 4 of the other groups of organisms are recognized pathogens capable of causing gastroenteritis, and we are inclined to accept the presence of *E. coli* as secondary invaders in food specimens, and as normal intestinal constituents in fecal specimens. The incubation periods of the 5 unmixed outbreaks yielded medians of 9.5 hours for the outbreaks and 11.7 for the cases. Even where *E. coli* is found in food specimens with no other determined contaminant, in view of the fact that it is relatively unimportant as a disease producer, its presence in the food, as in water, should be regarded merely as an index of fecal contamination, and a more intensive search made for such enteric pathogens as salmonellae and shigellae.

Four outbreaks showed the presence of *A. aerogenes*. All 4 also yielded other organisms which may be recognized as the responsible pathogens. So far as is known, *A. aerogenes* is non-pathogenic to man, and widely distributed in nature. It constitutes part of man's normal intestinal flora. It is extremely abundant in sour milk and its products. The presence of *A. aerogenes* in feces or in food samples suspected as vehicles of disease transmission should never be regarded as an indication of its responsibility for the gastroenteritis.

Proteus vulgaris was involved in 4 outbreaks, 3 of which showed mixed contamination. However, *Proteus* is said to be a recognized pathogen and causes a shigella-like gastroenteritis. The rarity of such outbreaks does not warrant additional comment.

Viruses have too frequently been held responsible for outbreaks of gastrointestinal disease. In the great majority of instances this represents mere wishful thinking on the part of the medical profession which comes in closest contact with frequent outbreaks of gastroenteritis among the population. Since the majority of cases seem to recover rapidly, and since there are no apparent complications and sequelae, it may seem that laboratory study is not indicated, and therefore a diagnosis of convenience, such as intestinal grippe or flu, or virus diarrhea, is made. We feel that more careful investigation would show these outbreaks to be due to the more common bacterial groups discussed in this paper. Several outbreaks of acute gastroenteritis of epidemic proportions (Epidemic Diarrhea and Epidemic Diarrhea of the Newborn) seem to be spread through respiratory channels. While in these outbreaks recent investigation indicates the probability of a virus as the infecting agent, such viruses have not, to our knowledge, been isolated in a single instance.

CONCLUSIONS

1. A great deal of the confusion existing today in our understanding of the commoner forms of gastroenteritis is basically due to poor diagnostic terminology, in which unrelated syndromes seem synonymous, and related syndromes are often classified independently.
2. It has been suggested that the present trend toward etiologic diagnosis, employed to some extent by bacteriologists and health agencies, be utilized by the clinician, and that the laboratories be used to a greater extent as a diagnostic tool.
3. The need for additional clinical data in the differentiation of the various forms of acute gastroenteritis has been stressed.
4. The seasonal variation in the incidence of various forms of vehicle-borne gastrointestinal disease has been presented, as well as the seasonal variation in the major types of bacterial gastroenteritis.
5. An approximation of the relative incidence of the more common types of bacterial gastroenteritis has been offered.

6. The incubation periods for the more common forms of bacterial gastroenteritis have been calculated, and suggested as a means of epidemiological and clinical differentiation.
7. A study of the major food items involved in the transmission of these diseases is presented and evaluated.
8. Case fatality rates seem more dependent on the age groups affected than upon the infecting organism or toxin.

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Training in Atomic Defense

"Environmental Sanitation Aspects of Civilian Defense in an Atomic Disaster" was the subject of a recent three day conference in Albany, under the auspices of the Bureau of Environmental Sanitation, New York State Department of Health. The object of the meeting was to provide supervisory engineers, veterinarians, and sanitarians with information on which to plan for dealing with possible atomic disasters. Speakers were drawn from the U. S. Public Health Service and from the New York State Departments of Health, and of Agriculture and Markets. Representatives from state, county, and city health departments, from other state agencies, and from 14 other state health departments were present, totaling about 150 persons.

Report on the Results of Examinations for Intestinal Parasites

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PRIOR to the termination of World War II, examination of fecal specimens for parasites constituted a minor activity in the enteric division of this laboratory. Both bacteriological and parasitological examinations were made of all specimens submitted by private physicians. The finding of parasites was unusual. Early in 1948, however, an increase in the incidence of parasitic infestations in this group became apparent. At this time, the laboratory was called upon to examine specimens from displaced persons who were recent arrivals from points of refuge overseas, mainly Singapore. The clinic (NEC), which was medically processing these persons, instructed them to bring three specimens to the laboratory at weekly intervals. Each specimen was subjected to bacteriological and parasitological examinations. The bacteriological findings were without interest. The parasitological findings are worthy of note and, in conjunction with the findings on patients referred by private physicians, will constitute this report.

METHODS

The following procedure has proved highly satisfactory for the detection of parasites and ova in fecal specimens collected outside the laboratory. All persons were instructed to collect specimens in glass jars with screw tops and to keep them as near body temperature as possible before delivering them to the laboratory. They were also instructed to deliver the specimens within three or four hours of collection. At least two direct microscopic examinations, using saline as a diluent, were made, immediately upon receipt of the specimen. If cysts were present, a small portion of the specimen was mounted in iodine solution (5 per cent potassium iodide in normal saline saturated with iodine) and examined microscopically. All specimens were then cultured, using Difco Entamoeba agar. This was prepared according to the technic of Cleveland. Slants were prepared in screw top vials, 5 x 5/8 in. Just prior to inoculation, a serum-saline mixture in the proportion of 1 to 6 was added to cover the slant. Fresh pooled inactivated human sera which had been found to give negative Kahn reactions were used. A pinch of rice starch (Difco) was then added to the supernatant and a gram or more of fecal material was emulsified in the liquid portion of the medium. After 18–24 hours incubation at 37° C., material for microscopic examination was removed with a pipette from the base of the slant, scraping the agar slightly to pick up any amebae adhering to the agar. In those culture tubes in which gas had forced the agar up from the base, leaving liquid at the bottom of the tube, it was essential that the liquid be also examined. Each of two or three parasitologists examined at least one smear from every culture. It was

found that the examination of multiple preparations greatly increased the percentage of positive findings; particularly was this true for such ova as *Clonorchis sinensis* and *Metagonimus yokogawai*. In such cases it was not unusual to find but one ovum in all of the smears examined. *Entamoeba coli* and *Giardia lamblia* grew very poorly or not at all in the medium. Other protozoa grew readily and ova tended to concentrate at the base of the slant.

Iron hemotoxylin stains and various flotation methods were tried but were discarded when it was determined that additional positive findings could not be obtained through the use of these methods.

RESULTS

For purposes of comparison, the results of the examinations for parasites in the specimens submitted at the request of NEC as well as by private physicians during the years 1946, 1948, and 1949 are listed in the tables. In 1946, the persons from whom the specimens were submitted by NEC or private physicians were representative of the local population exclusively. In 1948 and 1949, however, displaced persons became the source of specimens submitted by NEC. Although the number of specimens submitted by each individual in all groups varied from one to ten, the data are presented on the basis of individual cases and not on that of the total specimens examined. Furthermore, persons included in the group for one year are excluded from those for the succeeding years.

The minimum number of specimens to be examined in order to ascertain the presence or absence of parasitic infestation is not yet established. As shown in Table 1, more than 60 per cent of the positive findings for *E. histolytica*, among the NEC group, were obtained through examination of the first specimen submitted and approximately 10 per cent after the third. One hundred seventy-five of the 502 persons in the NEC group whose specimens gave negative results submitted but one specimen. Had further examinations been made, the positive findings undoubtedly would have increased correspondingly.

TABLE 1

	N.E.C. Percentage of persons first found positive on			
	1st Specimen	*2nd Specimen*	*3rd Specimen*	*4th–10th Specimen*
E. histolytica	63.3	14.6	11.9	10.1
Ova	59.3	17.6	12.0	10.6

The findings listed in Table 2 seem to indicate that an increased incidence of parasitic infestation was encountered in 1948 and 1949 among residents who were patients of private physicians. This might be explained, in part at least, by the return of war veterans to their families and by the wartime influx of persons from the southern areas of the United States. The strikingly greater incidence of infestation among the NEC group can easily be attributed to the greater opportunity of this group for exposure during their period of displacement in Europe as well as in Asia. Analysis of Table 3, in which are listed the species and types of the various parasites encountered in the course of examinations of the specimens over the periods mentioned, reveals a direct relationship of the increased incidence of

TABLE 2

	*Number of Persons * Submitting Specimens*	*Percentage of Persons Harboring Parasites*
Private Physicians including N.E.C. 1946	689	8.5
Private Physicians excluding N.E.C. 1948	661	13.3
Private Physicians excluding N.E.C. 1949	623	17.3
North End Clinic 1948	222	43.2
North End Clinic 1949	280	51.7

* Persons included in figures for one year are excluded from those of the following year.

TABLE 3

Percentage of persons harboring parasites

Type of Parasite	*N.E.C. & DR. 1946*	*DR. 1948*	*DR. 1949*	*N.E.C. 1948*	*N.E.C. 1949*
Endamoeba histolytica	2.5	4.0	9.1	15.0	23.2
Endamoeba coli	2.3	5.6	4.9	21.0	15.7
Endamoeba nana	0.2	1.3	0.4	8.1	2.8
Iodamoeba williamski	0.7	2.1	4.9	4.5	6.7
Dientamoeba fragilis	0	0	0	0.4	0.3
Giardia Lamblia	0.7	1.3	1.1	5.4	2.5
Other Flagellates	0.7	1.5	0.6	2.2	1.0
Ascaris lumbricoides	0.2	0.3	0.6	6.3	3.2
Enterobius vermicularis	0.4	0.4	0.3	0.4	0.5
Necator americanus	0	0.1	0.3	0.9	0.3
Strongyloides	0.1	0	0	0.4	0.5
Trichuris Trichiura	0	0.4	0.4	7.6	9.6
Clonorchis or metagonimus	0	0.1	0.1	8.1	5.0
Taenia saginata	0.1	0.1	0	0	0
Diphyllobothrium latum	0.7	0.1	0.4	0	0.3
Other Tapeworm	0.2	0	0	0	0
Number of Patients	689	661	623	222	280

TABLE 4

	Multiple Infestations Percentage Harboring				
	1 Type	*2 Types*	*3 Types*	*4 Types*	*5 Types*
Private Physicians Including N.E.C. 1946	7.8	0.5	0.1		
Private Physicians Excluding N.E.C. 1948	9.5	2.7	0.9	0.1	
Private Physicians Excluding N.E.C. 1949	10.5	4.4	2.5	0.1	
North End Clinic 1948	19.0	13.0	4.5	4.5	1.3
North End Clinic 1949	22.5	13.5	5.0	1.0	

parasitic infestation in this area to an increase in the migration to this area from Europe and Asia of persons harboring intestinal parasites. Particularly common were the multiple infestations among the persons in the NEC group, all of whom are known to have been displaced in regions affording greatest opportunities for infestation (Table 4). Evidence of all varieties of parasites harbored was not necessarily obtained from the examinations of a single specimen.

DISCUSSION

A review of the experience in the Detroit area reveals that there was an increased incidence of *E. histolytica* alone over a period of 4 years (1946 through 1949) among persons presumably native to this locality. An increase of 2.5 per cent to 9.1 per cent in this period of time is significant.

The influx during this period of numerous asymptomatic persons harboring pathogenic intestinal parasites must be considered an important factor.

The need for the development of further laboratory facilities through which the detection and control of this source of infection might be improved is clearly indicated.

Food Poisoning
A Review of Thirty-Four Outbreaks*

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STAPHYLOCOCCUS TOXIN

Historical

All experienced epidemiologists have seen outbreaks of "food poisoning" that have puzzled them. Frequently the epidemiological evidence gathered in the field points conclusively to a single item of food. When samples of this food have been examined in the laboratory, reports have been received stating, "nothing found, except the usual staphylococci."

I studied 6 such outbreaks prior to 1930. Being completely at a loss to account for these outbreaks, I took the opportunity to show my protocols to Dr. Milton J. Rosenau. His thoughtful comment was: "There is no food-infectious bacteria with as short an incubation period as three hours. It must be something else."

In 1930, Dr. Edwin O. Jordan of the University of Chicago and former president of the American Public Health Association, solved many of these difficulties by growing these "usual staphylococci" under such conditions that they produced an extra-cellular toxin. Since that time, many epidemics have been reported due to staphylococcus toxin.

Frequency

Nineteen of the 34 outbreaks being reviewed in this paper were caused by staphylococcus toxin. This represents more than half the series.

The Organism

The staphylococcus is such a ubiquitous organism that it may, and does, contaminate food at any time. Hair follicles, pimples, and hang nails are usually indicated, but it must be remembered that every excretion of the human body may contain this organism, and that it can be recovered from the skin of the hands at almost all times.

In 13 of these 19 outbreaks, the staphylococcus toxin was transported by cream-filled pastries. The pastries are of several kinds and go under various local names but the essential epidemiological fact is that they all contain the cream filling, and are known to the bakery trade as "soft goods." This starch, flour, and water mixture is as good for growth of staphylococci and its toxin production as many of the specially prepared laboratory media.

In 3 of these 19 outbreaks, the toxin was transported by "creamed food." It just happened that this "cream sauce," or "cream gravy," was applied to meat, ham, and potatoes. The result would have been the same if the "cream sauce" had been added to any other food.

Two outbreaks were the result of contaminated, improperly cooled fluid milk. It is interesting to note that in one of these outbreaks, the fluid milk had pre-

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-eighth Annual Meeting in St. Louis, Mo., November 2, 1950.

viously been condemned by the "odor test" done on the platform of the milk station. Some sanitarians have been skeptical of this test.

In a very dramatic outbreak in a military camp, a single ham in a lot of sixteen hams was found to be contaminated with toxin-forming staphylococci, and was the cause of a serious outbreak. The contamination was found on the meat remaining on the bone. After this outbreak, hams were always baked, in this camp, with the bone removed.

SALMONELLA

Frequency

Some member of the salmonella group has been found responsible for 6 of these 34 outbreaks.

Source

In each of these 6 outbreaks, with one possible exception, domestic fowls or eggs have been found to be the source of infection. The salmonella organisms grow well in the intestinal tract of barnyard fowls, and have been found, at autopsy, in the ovary of infected chickens.[1] The porosity of egg shells has been the subject of intensive study.[2] Bacteria can, and do, grow through unbroken egg shells by direct extension. Prompt refrigeration lessens this hazard. Eggs with shells soiled with barnyard manure should always be suspected.

Here we are dealing with a true infectious disease, and not the ingestion of a pre-formed toxin.[3]

Vectors

The vectors of the organism in this small series have been chicken, turkey, hash, and salad. Both hash and salad contained bits of chicken which had been accumulating for several days prior to the meal involved.

The chickens were cooked with the crops "in situ." They were allowed to stand and cool in the water they were cooked in, without refrigeration, for thirty hours before being eaten. The result could have been anticipated.

The turkey was cooked for Thursday dinner and was smuggled to a student's room, where it remained at room temperature. Then it was eaten as a "midnight snack" on Sunday. The attack rate was 100 per cent.

The hash and one of the salad outbreaks had nothing unusual about them. In the garden vegetable salad outbreak, the salmonella organisms were found in the mayonnaise. This mayonnaise was "home made," and of course raw eggs were used. Evidently the vinegar, and other ingredients of mayonnaise, are not highly destructive to salmonella organisms.

STREPTOCOCCAL DISEASES

The title "Streptococcal Diseases" is used because it most accurately describes the matter at hand.

Every epidemiologist has been plagued from time to time in trying to differentiate scarlet fever from septic sore throat. What difference there is probably resides in the patient as frequently as in the organism, or its epidemiology. It is high time to change our nomenclature to catch up with our knowledge and conception of the subject.

The streptococcus is another ubiquitous organism which may trap the unwary epidemiologist. It is capable of infecting every tissue of the human body, and has been found in all body discharges. All domestic animals are likewise subject to its infection.

Since contamination from human or animal sources may cause any of the many streptococcal diseases, it would seem that any one of these should be reported under the caption: "streptococcal disease."

The udder and milk ducts of the cow are particularly susceptible to injury and to this infection. Milk is a prime medium for its growth. Before the day of pasteurization ordinances and the

use of phosphatase tests, we all saw many outbreaks due to this chain of circumstances.

One of the most interesting studies in this series was a case of scarlet fever and a case of septic sore throat, in which a single strain of the streptococcus was identified in the cow and in the milk. This outbreak illustrated:

1. Animal source
2. Milk as a means of multiplication and spread
3. The protean form of streptococcal disease
4. Person to person spread

BOTULISM

Outbreaks of botulism are so rare and have been so well presented in the literature that my single opportunity to study it will not be reviewed here. I was fortunate enough to make the epidemiological study of the botulinus toxin carried by ripe olives in the city of Detroit in 1918. This was one of the sites of disaster that occurred within a few months in Kalispel, Mont.; Canton, Ohio; New York City; and Chicago. These outbreaks were all thoroughly studied and ably reported. They have been the source of most of the textbook material on botulism since that time.

CHEMICAL CONTAMINATION

Seven of the 34 outbreaks reviewed here were due to chemical contaminations. These chemical contaminations were due to some commercial or manufacturing processes or practices, not likely to be familiar to physicians or epidemiologists.

Three of these 7 outbreaks were caused by contamination with arsenic.

Arsenic

The first outbreak was due to eating green olives. Brine from the barrel showed 4 per cent sodium chloride, and acidity measured as lactic acid of 1 per cent. Obviously no pathogenic bacteria could grow and thrive in such an environment. Arsenic was identified in the brine. Brine in the bottom of the barrel revealed arsenic in the amount of ½ per cent in the sample collected. This would represent ¾ lb. of arsenic-tri-oxide in a 50 gallon barrel.

Our best guess was that in this olive orchard second-hand barrels were used. Unfortunately one of these second-hand barrels had previously contained some arsenic preparation for spraying the olive trees. A full report was made to the State Department of Agriculture, with copies for forwarding to the Federal Department of Agriculture.

The second arsenic poisoning outbreak was caused by a box of "Rough on Rats" being accidentally spilled in the cauldron where doughnuts were fried. The arsenic tri-oxide, being insoluble in grease, fell to the bottom of the cauldron. Doughnuts fried without agitation of the grease caused no discomfort. Doughnuts fried when the grease was stirred with a big paddle used for that purpose frequently had enough arsenic adhering to them to make a number of customers sick. The intermittency of the outbreaks depended upon these circumstances.

The third arsenic outbreak was caused by a new kitchen maid's mistaking an unlabeled sack of arsenic tri-oxide for powdered sugar.

Fortunately, in all these cases of arsenic poisoning, the dosage was sufficient to cause prompt emesis. Prompt medical attention saved all lives.

Antimony

Two antimony poisoning outbreaks have been studied. These were both informative and interesting. One of these was at a summer camp for boys from 7 to 14 years of age. When the boys had finished their evening meal, they found several enameled pitchers just outside the mess hall. The contents of these pitchers were called "belly-wash" by the boys. This "belly-wash" was made of the commercial preparations of citric

acid and tartaric acid, together with fruit flavors. To this was added sugar, water, and ice.

Of the 90 boys in camp, 4 to 10 would vomit every night within 20 to 30 minutes after leaving the mess hall. The camp physician would put them to bed and the following morning they would be as well as ever. This performance had been going on for about a week when the parents of one of the boys asked for an investigation. After eliminating the more obvious causes, the study focused on the enameled pitchers containing the drink.

Manufacturers report that enamel of this kind does not adhere well to the iron base metal without some "binder." This "binder" is usually some salt of antimony. This particular manufacturer, recognizing the hazard, had put on a third coat of enamel containing no antimony. The pitchers in use at this camp were old, and the enamel was chipped away in many places, exposing the bare base metal. The acid in the drink dissolved sufficient antimony from these open places to cause this transient gastrointestinal upset.

This new substance may have been antimonium-potassium tartrate, commonly known as "tartar emetic."

Cadmium

An electroplater bought a second-hand refrigerator. The ice cube trays were badly rusted, and he decided to give them a "new cover job." Chromium being a very scarce metal at the time, he decided to use cadmium. This worked very well when cubes of water were frozen.

But when sherbet and other foods made of mixtures containing citric or tartaric acid were frozen, enough of the cadmium was dissolved to cause emesis among those who ate the sherbet.

Phenolphthalein

An outbreak characterized by vomiting among small children playing in the street was called to the epidemiologist's attention. The most common denominator among these cases was that the children had been, and some were at the time of the investigation, eating a form of penny candy called "Brooms." These candies were made of marshmallow in the shape of a broom, held on a stick like a lollipop.

This candy was taken to the laboratory for examination. The candy was very dirty, but no bacteria were found, except nonpathogens and moulds.

It was noted that if the water in which these candies were rinsed was slightly alkaline, the candy changed from yellow to bright red. Further study indicated that the manufacturer had used phenolphthalein for coloring this candy. Enough of this chemical indicator was on these "brooms" to cause emesis in these children.

SUMMARY

1. Thirty-four outbreaks of food poisoning have been reviewed.
2. Need is shown for:
   a. Sound training in bacteriology
   b. Research into natural habitat of pathogens
   c. Inquiry into methods of handling, preparing, and serving foods
   d. Clinical acumen in identifying pathological conditions
   e. Sound training in chemistry
   f. Study of certain industrial practices
   g. The correlative mind to bring to bear on the problem at hand the significant data from these various sources.

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A Field Test for Efficiency of Detergents

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TO meet a widely recognized need in restaurant sanitation practice, a simple field test to determine the relative efficiency of detergents for commercial dishwashing has been developed.

In developing this procedure, it was determined that it should be a test which could be conducted by sanitation personnel with very elementary facilities or by restaurant personnel with equipment already available in the restaurant. It should employ readily available, typical soil or soils; should be conducted in the water in which the detergent is to be used; and should be reasonably accurate.

In searching for a suitable soil, those developed by Hucker,[1] and Gilcreas and O'Brien [2] were prepared and used. These soils are composed essentially of a number of ingredients representative of ordinary food soils, including fats and oils, and are mixed and blended thoroughly. A standard slide soiling and washing procedure similar to that which has been used by the Laboratory Division of the New York State Health Department [2] revealed that good results were obtained from virtually any detergent element or compound used, and reasonably effective results were obtained by washing in hot water alone. A variety of other soils of a somewhat similar nature were tried with similar results. After some experimentation of this sort, it occurred to the authors that the soil ingredients of these blended soils were coated with the fat or oil elements and that the detergent action indicated was essentially the cleaning efficiency for fats and oils alone, although protein and carbohydrate elements originally were included in the soil. In addition, during many observations of dishwashing procedures in commercial establishments, it was noted that the soil on utensils does not occur as a mixture of soil elements but that the various types of food soils occur rather independently on various parts of the utensil. For example, a typical breakfast dish may be soiled in one area with grease; in another area with egg; and in a third area with carbohydrate soil such as corn grits.

In view of this a soiling procedure was developed which exposes individual types of soil to detergent action. This was accomplished by employing a 6 oz. drinking glass and dividing it into one-third segments by marking the outside of the glass with vertical lines using a glass marking pencil. With an ordinary cotton swab various types of soil were swabbed as uniformly as possible on the inside surfaces of the marked glass, one type of soil per segment. The soils that were decided upon finally as being most effective and still representative were peanut butter for fats, partially coagulated egg white for protein, and thin cooked oatmeal for carbohydrates. After soiling the glass as uniformly as possible, the soil was set by heating the glass in a

warm air oven at 105° F. for 10 minutes.

To devise a simple field washing procedure, adaptations of the soiled slide technique were employed, but neither a truly effective or simple process was evolved. With the development of the soiled-glass technique considerable experimentation led to the following procedure: The prepared glass is filled half full with a 0.3 per cent by weight solution of the detergent to be tested, made up in water at room temperature with the water in which the detergent is to be used. The top of the glass is covered with a rubber sink-stopper and then shaken vigorously fifty times through a one foot arc. The 0.3 per cent solution of detergent approximates the concentration recommended for most detergent compounds. To make a 0.3 per cent solution of sufficient accuracy for field work, 3 grams or 44 grains of detergent are added to 1 quart of water, or ½ oz. is added to 5 quarts of water. Where a laboratory scale weighing in grams is not available, the use of an apothecary's balance in any prescription pharmacy weighing in grains usually can be obtained; and lacking this, a reasonably accurate postal scale weighing in ounces may be employed. Due to differences in particle size and weight of various types of detergents, the preparation of solutions on a volumetric basis is not suggested. Following the washing procedure the glass is rinsed by dipping three times into clean tap water.

The interpretation of the test consists of simple visual comparison of the efficiency of any detergent used in the washing procedure against the efficiency of another detergent of known high efficiency which is designated as the standard. The detergents under test and the standard compound are tested at the same time, as in procedure above, taking care to maintain as uniform a procedure as possible. The detergents under test then can be seen to be either less efficient, equally efficient, or more efficient than the standard. If by repeated tests any of the detergents in question are more efficient than the standard, then the old standard is discarded and the more efficient detergent becomes the standard for future tests. The detergent effect against each type of soil may be seen and compared. On rinsing the glass, observation will show both relative washing and rinsing efficiency of the detergent. Observation of the detergent solution following washing reveals its comparative dispersion ability. Table 1 shows the results of tests of commercial dishwashing products available on the local market compared with a standard prepared at this Station from a recommended formula.[3]

Due to the somewhat inexact nature of the test, results are reported only as good, fair, and poor efficiency. From the table it is evident that detergent No. 1 showed greatest efficiency compared with the standard, but that none of the detergents is particularly effective in the water used and that additional compounds should be examined.

From the foregoing, it is evident that this test is a rather simple, if somewhat crude, method of determining detergent

TABLE 1

	Removal				
Detergent	*Peanut Butter*	*Egg*	*Oatmeal*	*Dispersion*	*Rinsing*
1	Fair	Fair	Good	Fair	Fair
2	Fair	Poor	Fair	Poor	Poor
3	Poor	Poor	Poor	Poor	Poor
4	Fair	Poor	Fair	Poor	Poor
5	Poor	Poor	Poor	Poor	Poor
Standard	Good	Good	Good	Good	Good

efficiency, but it has been shown through field use to be an effective method for sanitation personnel to employ in choosing between two or more detergents. The test has the advantage of being run with the water in which the detergent is to be used, a particularly important consideration in areas where any large proportion of eating establishments is served by private water supplies. The test can be conducted in restaurants by sanitation personnel who either may prepare the material for the test in the establishment or who may bring the prepared test glasses with them. After a demonstration or two, restaurant operators themselves can conduct the test which provides them with a relatively effective guide in choosing a new detergent or evaluating detergents when under sales pressure.

It is believed that the procedure fulfils the requirements established for this test and that it may be employed as a FIELD procedure with benefit to both public health agencies and the restaurant industry.

SUMMARY

1. A simple field test for the efficiency of detergents is described.
2. Individual food ingredient soils rather than combined food ingredient soils were used. The success of the test hinges on the use of proper soils, and combined soils were found to be entirely unsatisfactory.
3. The preparation and use of the soiled drinking glass technique is detailed.
4. The test may be conducted in the field without special equipment, and is interpreted by simple visual observation.
5. Errors in estimating detergent efficiency caused by differences in various waters are eliminated because the test is run with the water in which the detergent is to be used.
6. The test gives comparative rather than exact results but is sufficiently accurate to classify detergents as good, fair, or poor.

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Grants for Scholars in Cancer Research

The American Cancer Society in 1951 will inaugurate a program to help newly trained scientific scholars establish themselves in the field of cancer research. The Grants for Scholars in Cancer Research, as the program will be known, are designed to bridge the gap between the completion of fellowship training and the period when the scientist has thoroughly demonstrated his competence as an independent investigator. A limited number of American Cancer Society Scholars will be appointed annually on recommendation of the Committee on Growth of the National Research Council. A grant of $18,000, payable over three years, will be made directly to each Scholar's institution by the American Cancer Society as a contribution toward his support, or his research, or both.

Medical schools, hospitals, research institutes, and other institutions with a primary or substantial interest in cancer research are invited to submit applications for these grants. Applications for grants to be effective July 1, 1951, should be submitted prior to January 1, 1951. Inquiries or requests for application forms should be addressed to the Executive Secretary, Committee on Growth, National Research Council, 2101 Constitution Avenue, N. W., Washington 25, D. C.

Malaria Eradication in the United States*

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Scientist Director, Deputy Officer in Charge; Officer in Charge, Malaria and Typhus Appraisal Unit; Officer in Charge, Epidemiologic Services; Communicable Disease Center, U. S. Public Health Service, Atlanta, Ga.

IN 1945 the Public Health Service and the southeastern states undertook a coöperative program of malaria control in civilian areas. This was a logical extension of the activities conducted around areas of military importance during the preceding five years. The philosophy of the extended program was as follows:

1. Malaria was recognized as a gradually declining disease in the United States,[1] but was still believed to be present in many regions of the 13 traditionally malarious states of the Southeast. The morbidity and mortality reports at that time indicated many thousands of cases. Based on previous experience, it was the common belief that such reports, at least of morbidity, underestimated the total incidence of infection. While the trends of morbidity and mortality were steadily downward, it was felt that a well coördinated, large-scale control program might eliminate the disease entirely.

2. Many malariologists over the years believed that malaria occurred in cyclical form,[2, 3] though no convincing explanation of the basis for such a pattern in this country was ever advanced. The 1936 epidemic in the United States accompanied and seemed to be related to the depression, an association which has been noted previously in this and other countries.[4, 5] A resurgence of malaria with a postwar depression was a possibility which gave malariologists and health officials serious concern.[6–9] If malaria could be knocked out completely before such a depression ensued, this disease could not be present to augment the misery and poverty of the affected population.

3. During 1945 and 1946 many thousands of veterans returned from overseas theaters, particularly the South Pacific, carrying peculiarly relapsing types of *Plasmodium vivax* infection. It was shown experimentally that these strains could be transmitted effectively by our native anopheline species.[10] It was feared that they might become established in this country, especially in the Southeast where anophelism still prevailed.

4. Purposeful malaria control, coöperatively undertaken by state, local, and federal agencies appeared to have already aborted the "cyclicity" of the disease. If more of the same effective teamwork could prevent the establishment of imported malaria, the project would be vastly worth while to the nation.

The basic operation of the proposed program represented a complete change from previous malaria control activities. Larviciding, drainage, and programs to promote insect-proofing of houses were abandoned and efforts were concentrated upon the use of indoor residual DDT sprays in areas where endemic malaria was known to be present or had been recently reported.[11] The principle of this new program was very simple. Instead of trying to reduce the general abundance of anopheline mosquitoes, lethal measures were aimed specifically at the small proportion of anophelines that actually bite man. If these could be killed before they had the opportunity to bite human beings a second time, malaria could not be transmitted. The success of this procedure had already

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-eighth Annual Meeting in St. Louis, Mo., November 2, 1950.

FIGURE 1

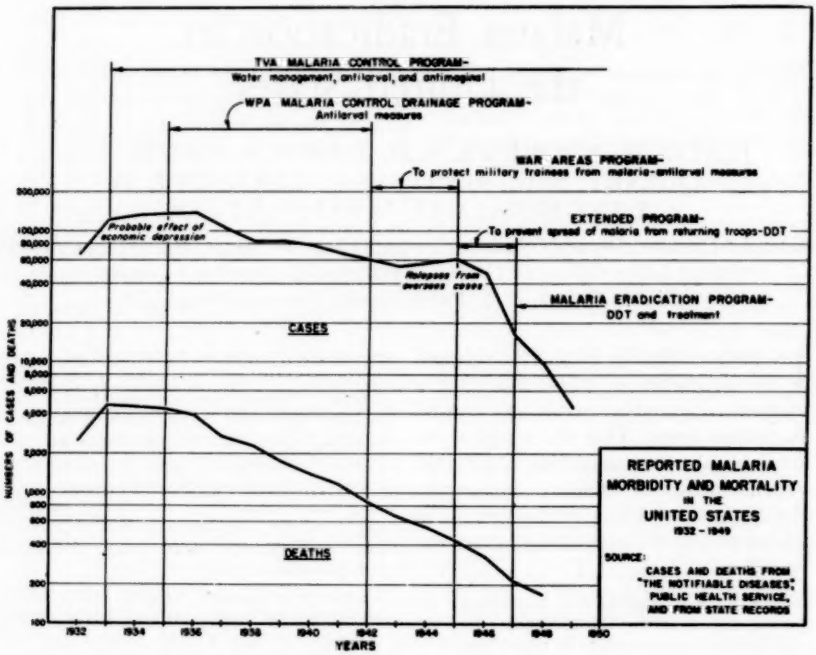
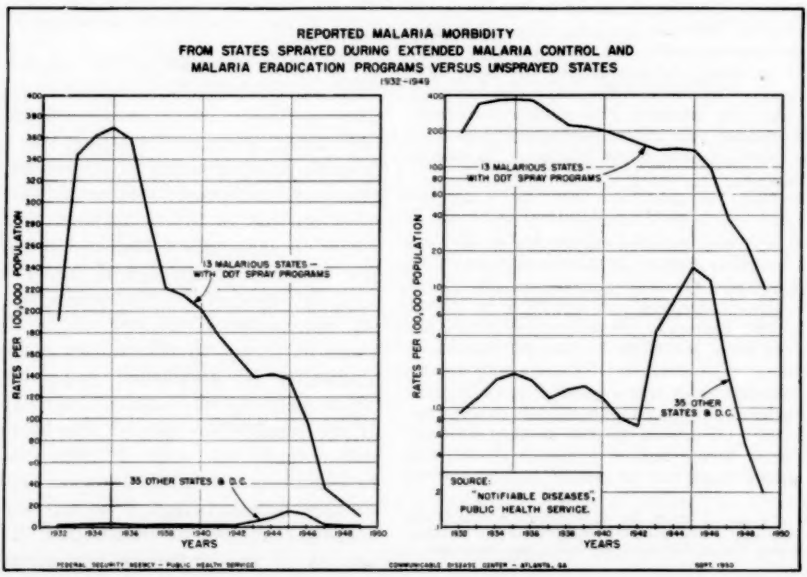

TVA MALARIA CONTROL PROGRAM-
Water management, antilarval, and antimosquito
WPA MALARIA CONTROL DRAINAGE PROGRAM-
Antilarval measures
WAR AREAS PROGRAM-
To protect military trainees from malaria-antilarval measures
EXTENDED PROGRAM-
To prevent spread of malaria from returning troops-DDT
MALARIA ERADICATION PROGRAM-
DDT and treatment
Probable effect of economic depression
Relapses from overseas cases
CASES
DEATHS
NUMBERS OF CASES AND DEATHS
YEARS
REPORTED MALARIA MORBIDITY AND MORTALITY IN THE UNITED STATES 1932 - 1949
SOURCE: CASES AND DEATHS FROM "THE NOTIFIABLE DISEASES", PUBLIC HEALTH SERVICE, AND FROM STATE RECORDS

FIGURE 2


REPORTED MALARIA MORBIDITY
FROM STATES SPRAYED DURING EXTENDED MALARIA CONTROL AND
MALARIA ERADICATION PROGRAMS VERSUS UNSPRAYED STATES
1932-1949
RATES PER 100,000 POPULATION
13 MALARIOUS STATES - WITH DDT SPRAY PROGRAMS
35 OTHER STATES & D.C.
YEARS
SOURCE: "NOTIFIABLE DISEASES", PUBLIC HEALTH SERVICE.

been well demonstrated in various parts of the world.[12, 13]

Accordingly, in 1945, this program was initiated in selected civilian areas and, by 1947, a comprehensive project was under way throughout the Southeast with the stated objective of eradicating malaria as an endemic disease within five years. The end of this period (June 30, 1952) is drawing near. It is appropriate, therefore, to make a critical evaluation of the progress to date.

In 1945, a total of 62,763 cases of malaria was reported in the United States; 78 per cent of these occurred in the 13 "traditionally malarious" states. In 1949, a total of 4,241 was reported. This constitutes an apparent reduction of 91 per cent in the five years of the residual spray control program. This figure, however, has scant significance because it was found in the process of making the studies here reported that the malaria morbidity statistics during this period were grossly misleading. Evidence to support this statement will be presented.

In attempting to evaluate the present status of malaria incidence, reliance has been placed primarily on the discovery and investigation of laboratory-confirmed parasitism. This may be considered an excessively exclusive criterion of infection. Nevertheless, it is the most objective test available, if affirmed by competent microscopists. In laboratories where induced mosquito-borne malaria is being studied, it is the usual experience to find parasites in patients as long as they manifest symptoms of vivax or quartan infection; indeed, the period of detectable parasitemia usually exceeds that of illness.[14, 15] Non-detected parasitemias during the clinical exhibition of falciparum malaria are a trifle more frequent, but even here the correlation between parasites and symptoms is high. Unfortunately, adequate parasitologic data pertaining to reported malaria are not available over the years, but in 1949 a beginning was made in the systematic collection of the available facts. A critical review of them leads to the conclusion either that malaria has already been substantially eradicated as an endemic problem or that the data are grossly insufficient.

The information to be presented in support of these statements is of three types.

1. The malaria morbidiy and mortality statistics of the United States since 1932.
2. An analysis of the laboratory examinations for malaria parasites made during the last 18 years in the laboratories of state health departments, the Tennessee Valley Authority, and the Public Health Service.
3. The results of the malaria appraisal activities undertaken by the Communicable Disease Center together with the states participating in the eradication program.

REPORTED MALARIA MORTALITY AND MORBIDITY

The numbers of cases and deaths attributed to malaria in the nation are shown by years in Figure 1. The mortality statistics will not be analyzed in detail because these have been known for many years to be patently inaccurate.[16-18] Malaria in this country is rarely a malignant disease and during the last decade almost never a primary cause of death. The mortality curve slopes steadily downward, but the numbers of deaths are spuriously high and their trend should incline more sharply.

Malaria morbidity statistics are also grossly erroneous, but because of their temporal association with events which may have been related to changes in trend, more consideration has been given to their interpretation (Figure 1). Figure 2 shows the annual incidence of reported malaria cases in the 13 states which have participated in the malaria eradication program * and in the rest of the United States from 1932 to 1949.

* Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas.

This period may be divided into four arbitrary sections.

1. During the first, from 1932 to about 1940, malaria was epidemic in much of the South. This is shown by the 1933–1936 peak on the graphs. In surveys of malarious areas it was the usual experience to find many infected individuals. Parasite rates up to 50 per cent were not uncommon in children,[19, 20] though the numbers of cases reported were only a small fraction of those indicated by these levels of parasitism. The statistics of this period were characterized, therefore, by under-reporting. However, during the next decade this situation changed drastically so that now it is equally possible to prove—as shown below—that the number of reported cases grossly exceeds the number of true infections.

2. The second period of interest in Figure 2 is the progressive decline of malaria morbidity between 1938 and 1943. Laboratory evidence shown below indicates that the decline was more rapid than the morbidity curve suggests.

3. The third section of Figure 2 is the period from 1943 through 1947 when there is a slight bulge in the malaria incidence curve for the eradication states and a marked peak in the reported incidence for the rest of the nation. This clearly represents the importation of malaria by troops returning from overseas and relapsing in this country. Some idea of the extent to which infection was thus introduced is apparent from these charts, but it must be recognized that, even in the states where reporting is excellent, the number of cases recorded probably represents only a small fraction of the total which occurred.

4. The fourth period of interest is that since 1947 when there appears to have been an accelerated decline in reported cases in the 13 states. One would be tempted to interpret this extraordinary descent as the logical consequence of effective malaria control, but the fact is that it can be explained on a purely statistical basis. It is due primarily to a change in the method of morbidity reporting by the State of Mississippi in 1947, requiring the identification of patients. The result of this change was that while 17,764 cases were reported in Mississippi in 1946, only 914 were notified in 1947. A similar change in reporting procedure was instituted in South Carolina in 1949. At the present time, Texas is the only remaining state whose morbidity reporting system does not identify the patient. It is believed that these transitions plus the elimination by states of obviously doubtful reports based on appraisal are responsible for the abrupt decline in reported malaria morbidity since 1947.

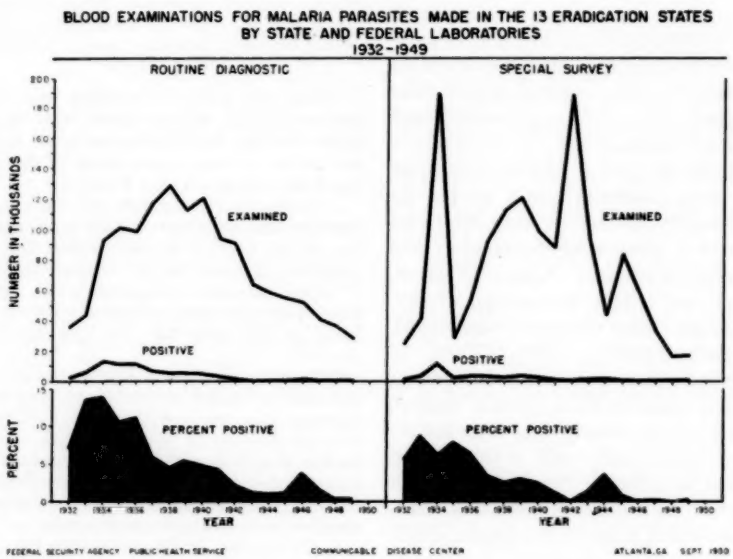
BLOOD EXAMINATIONS FOR MALARIA PARASITES

The laboratory examinations for malaria are considerably more revealing. They comprise two groups, routine diagnostic examinations requested by physicians and special surveys made to measure the endemicity of malaria. The numbers of smears * and the percentages positive are shown by years since 1932 in Figure 3. The quantities of diagnostic and of survey slides examined each year are considerable. The most important indication from these data is the generally diminishing trends of the percentages of slides positive. The 1946 peak of the diagnostic curve resulted from relapses during and after the repatriation phase of the war. The 1944 peak in the survey curve represents the effect of the latest local epidemic in the nation, experienced near the Santee-Cooper impoundment in South Carolina.

It is also significant that the numbers of the diagnostic slides have decreased markedly and continuously since 1939,

* Our thanks to the directors and staffs of the laboratories who assisted in locating and interpreting the records of malaria examinations—a musty job!

FIGURE 3



implying that fewer and fewer patients were suspected of having malaria. The two spikes appearing in the curve of survey slides examined record the results of two surveys made throughout the South. It is interesting to note that the percentage positive of the first (1934) was 6.1, of the second (1942) 0.3.

It is evident from Figure 3 that, since 1942, blood surveys have been more useful in determining the virtual absence of malaria than in measuring its endemicity.

MALARIA APPRAISAL PROGRAM

In 1947, the Communicable Disease Center initiated a program of malaria appraisal to evaluate progress toward the eradication of the disease. Medical and nurse epidemiologists were assigned to states to appraise individual cases and deaths attributed to malaria, to investigate reported outbreaks of the disease, and to promote better diagnosis and treatment.

During the first two years of this program, the numbers of reported cases were so large that complete coverage of individual case reports was out of the question. Activities, therefore, were directed to visiting the few physicians whose reports accounted for the majority of the cases and deaths in the state. Efforts were made to confirm these but they were rarely successful.

Beginning in 1949, however, greater stress was laid upon individual case appraisal as the primary responsibility in the program. In this year, therefore, there is a beginning of reasonably adequate data on individual cases. Public Health Service personnel were assigned continuously in the States of Mississippi and South Carolina and for part of the year in the States of Georgia, Alabama, Arkansas, and Texas. As many as possible of the reported cases and deaths from malaria were investigated, obtaining all pertinent facts of epidemiologic significance. Of particular importance

were the history of malaria attacks, of trips out of the country to malarious areas, of recent transfusion, and of antimalarial treatment. These records were reviewed by state epidemiologists who appraised them as to confirmation and source of infection.

During this year a total of 55 positive cases were confirmed in 8 of the 13 traditionally malarious states. As shown in Table 1, these were the yield of 494 appraisals made in 7 states. Of these, 19 were not wholly and adequately explained as being relapses, transfusions, or clearly imported cases. These 19 which have been classified as indigenous primary malarias have certain unusual characteristics, namely that each has occurred sporadically and without clear relation to another case. Many have occurred under epidemiologic circumstances which raise serious question that they could be indigenous or primary, but they have still been so classified for want of other explanation. Reliable instances of primary cases are so few and far between that the occurrence of consecutive transmission is debatable. The question can be resolved only by more critical diagnosis, reporting, and investigation.

CONCLUSIONS

1. Since the 1933–1937 epidemic, the numbers of reported malaria deaths have maintained a regular trend downward in the nation and in the 13 states participating in the National Malaria Eradication Program.

2. During the same period, reported malaria morbidity has diminished steadily in the nation and in the eradication states except for the temporary increases due to the demobilization of service personnel. The other states experienced a proportionately higher wave of relapses at the same time but this has now subsided.

3. Evidence from the field investigation and appraisal of alleged malaria deaths and cases indicates that more of these are now being reported than can be verified, that the rates of decline of malaria mortality and morbidity are actually steeper than official reports indicate, and that both of these attributes are currently closer to zero than is commonly supposed.

4. Critical case appraisal of reported malaria morbidity in 7 states revealed the presence of 19 instances which could not be explained on some basis other than transmission in this country.

5. A careful review of reported malaria mortality and morbidity, of diagnostic and survey blood examinations, and of case appraisals, all support the contention than en-

TABLE 1

Appraisal of Malaria Cases Reported or Known to Have Occurred in 1949*

State	Reported in 1949	Cases Appraised	Parasite-positive in state approved laboratory						
			Total	Indigenous		Introduced	Transfusion	Source Induced	Unknown
				Primary	Relapse				
Alabama	134	27	3		1	2			
Arkansas	323	116	2	1			1		
Florida	43								
Georgia	91	89	19		2	14			3
Kentucky	21								
Louisiana	21	1	1	1					
Mississippi	72	96	4	3		1			
Missouri	4								
North Carolina	53	2	2	1	1				
Oklahoma	92								
South Carolina	242	153	18	9	4	1	1	1	2
Tennessee	35	2	0						
Texas	2,881	8	6	4		2			
Total	4,012	494	55	19	8	20	2	1	5
Other States and D. C.	229	4	0						

* Through July 31, 1950. The contributions of state and federal epidemiologists are acknowledged.

demic malaria has been reduced to the vanishing point. But these data are not considered sufficiently extensive to prove that malaria has been eradicated from this country.

ACKNOWLEDGMENT — The authors desire to express their indebtedness to Miss Sarah Welch, for the collection and analysis of malaria statistics.

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NSPB News

The National Society for the Prevention of Blindness has initiated its program for developing state and local societies by affiliating three local societies, the Detroit and Washington, D. C. Societies and the Pittsburgh Branch of the Pennsylvania Association for the Blind.

The Wise Owl Club, sponsored by the National Society, is made up of workers who by proper safety measures saved their eyesight in an accident that would otherwise have blinded them. The 1,000th Membership Certificate was recently awarded to Clayre Pomeroy of the Reynolds Metal Company in Phoenix, Ariz. His safety goggles protected him when a chip flew off a carboloy bit. The presentation was made in Washington, D. C., by Secretary of Labor, Maurice T. Tobin.

NSPB has added two new vice presidents to its list of officers:

William L. Benedict, M.D., Mayo Clinic
Ira V. Hiscock, D.Sc., chairman, Department of Public Health, Yale University

Public Health Approach to the Control of Alcoholism*

RAYMOND G. McCARTHY

Executive Director, Yale Plan Clinic, Laboratory of Applied Physiology, Yale University, New Haven, Conn.

LEGISLATION directed toward regulation of the manufacture and sale of alcoholic beverages and control of drinking behavior in the public interest is centuries old. Sales to minors, driving "under the influence," drunkenness, and disturbances associated with these conditions have long been matters of public law. In 1945, however, the General Assembly of Connecticut enacted legislation relating to alcoholism which was unique. By its action, the Legislature acknowledged alcoholism as a form of illness, a disorder, which properly belongs in the realm of public health. It states further that the incidence of this disorder constitutes a public health responsibility. A State Commission was created, with authority and appropriate funds to study the causes of alcoholism, to establish facilities for treatment, and to disseminate information on the subject for the assistance and guidance of residents of the state. For the first time in the history of this nation, a major government agency recognized formally that the alcoholic is not necessarily wilful and perverse in his behavior; that he constitutes a medical problem; and that organized society has a responsibility to provide facilities for treatment, research, and prevention of this medical and social disorder.

The Connecticut law was outstanding because of the principle expressed. Yet the real significance of this legislative action is most realistically measured by the dramatic response of the country to it. In the brief span of five years since 1945, 26 states have instituted programs directed toward the correction of alcoholism. Some states have created independent boards or commissions, e.g., Alabama, Connecticut, New Hampshire, Oregon, and Utah. Others have integrated the responsibility concerning alcoholism in existing agencies such as a department of health, of mental hygiene or public welfare, e.g., Delaware, Florida, Maryland, Massachusetts, Mississippi, New Jersey, New York, North Carolina, Virginia, Wisconsin, and the District of Columbia. Study commissions instructed to recommend a constructive program for dealing with alcoholism to the next session of the legislature are functioning in California, Colorado, Illinois, Louisiana, Maine, Michigan, New Mexico, Ohio, Rhode Island, and Vermont.

During the same five year period, treatment facilities sponsored by municipal or county authorities or by private groups have been established in different sections of the country. Clinics are operating in Boston, Detroit, Milwaukee, Pittsburgh, Rochester, Toledo and Youngstown, Ohio. A county-supported clinic is functioning in Arlington, Va. Local committees for education on alco-

* Summary of a Paper Presented at the Fourth Annual Massachusetts Public Health Conference and the New England Health Institute, University of Massachusetts, Amherst, June 16, 1950.

holism have been organized in 53 communities throughout the country, usually with the sponsorship of the National Committee on Alcoholism.

Emphasis on alcoholism and its treatment is reflected in concern about prevention, particularly among young people. Textbook materials on problems of alcohol and alcoholism which have been used in the schools are being critically reviewed. Revised editions of standard texts carrying sections about alcoholism have been issued. State manuals for instruction about alcohol are being evaluated by teacher committees. Some states have prepared new teaching manuals, e.g., Connecticut, Mississippi, and Florida. Particular attention is being directed toward aiding teachers to acquire a background of information adequate for teaching about alcohol at different grade levels. This area of inservice training has been especially developed in Alabama, Mississippi, Florida, and Oregon. In Connecticut, Ohio, and Vermont, although inservice and extension courses for teachers on problems of alcohol have not been offered, guidance in preparing courses is available to school systems through the state department of education.

At the Eighth Annual Summer School of Alcohol Studies, sponsored by the Laboratory of Applied Physiology, Yale University, in July, 1950, 40 educators from 13 states and 2 Canadian provinces participated in an Education Workshop designed to organize basic concepts and effective teaching techniques to strengthen instruction about alcohol in public and private schools. The University of Wisconsin scheduled its first Summer School of Alcohol Studies in August, 1950, and the program was planned in part to meet the needs of educators.

In 1948, the First National Conference on Alcoholism in Industry met in Chicago, with representatives of some of the country's largest industrial concerns participating. Leadership in this area of the problem has been assumed by Eastman Kodak of Rochester, du Pont of Delaware, Allis-Chalmers of Milwaukee, and Consolidated Edison of New York. The Wisconsin Bureau of Alcohol Studies, Division of Mental Hygiene, State Department of Welfare, with the coöperation of the Wisconsin Manufacturers Association and management and labor representatives of 9 industrial plants in that state, is sponsoring an intensive program of information about alcoholism for employees, supervisors, and executives. Original posters, payroll inserts, and pamphlets have been prepared by the Section on Alcohol Studies of Yale University. The program emphasizes prevention by publicizing information regarding the symptoms of alcoholism and encouraging treatment in the early stages. Although many employers still look upon alcoholism as a disciplinary question or insist that they have no problem, Dr. John L. Norris, Medical Director of Eastman Kodak Company, has stated " Any company that says it does not have any problem with alcoholism among its employees does not know what it is talking about."

The American Association of Industrial Physicians and Surgeons, in 1949 and again in 1950, devoted a section of the program of the annual meeting to a presentation and discussion of alcoholism as a medical problem in industry. The American Psychiatric Association has a Sub-Committee on Alcoholism which reports at annual conferences on developments in treatment of the disorder. Many state and county medical societies have similar committees.

It has been estimated that 50–70 per cent of the inmates of municipal and county jails are sentenced on drunkenness and associated charges. Most courts and jails of necessity follow a revolving-door policy. Penologists recognize the futility and the economic and

social waste of existing procedures. Tentative steps toward developing techniques for improving these conditions have been instituted by correctional officers in several states, e.g., the Alameda County Rehabilitation Center sponsored by Sheriff H. A. Gleason of Oakland, Calif.

The Board of Supervisors of Los Angeles County in January, 1950, contracted with the Laboratory of Applied Physiology of Yale University for a survey of treatment resources for alcoholics in the county with recommendations for establishment of a long-range plan of treatment facilities. Particular emphasis was placed on the imperative need to alleviate the burden imposed on city and county correction authorities by the thousands of arrests for drunkenness which occur annually.

Attitudes regarding the use of alcohol, and toward alcoholism, vary among the churches of this country. However, they have generally expressed agreement on the need for treatment resources for the alcoholic. At the same time, concern has been widespread regarding the social ramifications of alcoholism. The Council for Social Action of the Congregational Church devoted the April, 1950, issue of its publication *Social Action* to discussion of the topic "Alcoholism and Religion." The Board of Christian Education of the Presbyterian Church in the U.S.A. has adopted a program directed at prevention and control of alcoholism. Publications of this body include Clifford Earle, *Alcohol and People* and Seward Hiltner, *Helping Alcoholics. A Guide for Pastors in Counseling Relationships with Alcoholics and Their Families*. Other churches issue similar materials for members and clergy.

In medicine, emphasis is being given not only to psychotherapy but also to the development of adjunctive techniques for treatment of alcoholism. Many private physicians are interested in the application of the drug Antabuse which has been reported upon favorably. While general hospitals have been reluctant to admit alcoholics to their wards, the success of such an admission policy at Knickerbocker Hospital in New York City; St. Francis Hospital in Hartford, Conn.; St. Luke's Hospital in Philadelphia; and in several similar institutions scattered throughout the country, suggests that in time, the general hospital superintendent may show less resistance to accepting the alcoholic as a patient. This will most probably follow when outpatient treatment facilities exist in a community to which a patient may be referred after brief hospitalization for acute intoxication.

Several metropolitan newspapers have featured series of articles on the problem of alcoholism. Notable among them have been the stories carried by the *Chicago Daily News*, the *Christian Science Monitor*, the *Detroit News*, the *New Orleans Times Picayune*, the *Providence Evening Bulletin*, and the *Washington Post*. Novels and motion pictures portray the alcoholic as a tragic rather than a comic figure. Civic clubs, Parent-Teacher Association groups, and local committees on alcoholism are sponsoring meetings and radio programs. Community awareness of the problem and the potentials for doing something about it have developed with dramatic impetus.

Alcoholism is a medical and psychiatric disorder, characterized by inability on the part of an individual to achieve an adequate and satisfying relationship to himself and to his environment, which is expressed by the uncontrolled use of alcohol. It is accompanied by physical, emotional, and social symptoms of disorganization blended in varying degrees in different cases. It is a progressive disorder for many individuals.

The concept of the alcoholic for some people is that of the vagrant, the homeless floater who is to be observed shuffling around the fringe of any large

city. Others think of the alcoholic as the comedian, the funny man of stage and screen. These characters may or may not be alcoholics. What is often not understood is the fact that between these extremes of behavior associated with uncontrolled drinking will be found a cross-section of our society. Alcoholism is no respecter of intelligence, family background, education, professional status, or success in various fields of economic and social activity.

Among the alcoholic population will be found the potential psychotic, the moron, the psychoneurotic individuals with severe personality defects. There will also be observed large numbers of cases of persons who show no overt social and psychological deviation but whose relationship to themselves and to the environment is a precarious one. Because this precarious inner balance and control is readily disturbed, life is often stormy. Alcohol for these people offers a gratification which is incomprehensible, even repugnant, to the ordinary drinker. For the alcoholic, it provides a fantasy world which becomes more and more appealing as reality becomes progressively more threatening, often because of excesses arising from the drinking behavior.

Alcoholism as a disorder is unique in that millions of persons who use alcohol do not show this bizarre reaction. It is estimated that approximately 67 per cent of the 100,000,000 adults in the country use alcohol at some time or another, and in metropolitan areas the ratio is reported to be higher. Of the total users of alcoholic beverages, approximately 3,500,000 persons are uncontrolled drinkers. The ratio of male to female alcoholics is roughly 6 to 1. This relatively small per cent of drinkers is conspicuous in behavior and prone to individual and social disorganization. Many of them constitute a serious burden on the community in welfare costs, family disintegration, loss of time from jobs, and expenditures for courts and jail maintenance.

Any consideration of the problem must recognize its complexity. Not all alcoholics are alike. Causal factors vary widely and potentials for recovery through one or another of available therapeutic procedures likewise vary. Medical diagnosis which involves a thorough physical examination, neurological study, psychiatric exploration, and social development evaluation is imperative. Recovery from alcoholism is a long-term proposition. The disorder does not arise overnight. Any condition which has its roots in the early stages of psychological and social growth of an individual will not be corrected in a few hours or in a few weeks. Fundamentally, alcoholism belongs in the field of mental hygiene, and resistance to mental health principles is only slowly being broken down in our society. Adequate and sustained treatment and follow-up is indicated. At the present time, in view of the enormity of the problem, resources in the country so organized and equipped as to be able to provide this kind of treatment are meager.

It would be entirely misleading to assume that the remarkable surge of interest in correction and treatment of alcoholism derives solely in response to the Connecticut law of 1945. To a great extent, public concern over the problem of alcoholism can be attributed to the dramatic and moving experiences of Alcoholics Anonymous. This program, originating quietly in 1934, began to expand in the early years of World War II. Because alcoholism impinges on basic human values, and because newspaper writers and journalists saw in the recovery of A.A. members human interest material, tremendous publicity ensued. At the present time, there are approximately 100,000 members of A.A. in the United States and several foreign countries. There are more than 2,000 groups functioning throughout the world.

In July, 1950, the organization held its first International Conference at Cleveland. The experience both of Alcoholics Anonymous and of alcohol clinics has demonstrated that many alcoholics can be helped, that they are ready to accept help, and that following recovery they can assume a constructive position in society.

Public response to the problem of alcoholism has been generated to a considerable extent by relatively small groups in various parts of the country. The response in the last five years has been tremendous, when consideration is given to the fact that various unsuccessful attempts at solution of this problem have been undertaken during the past century. To some extent the initial phase of enthusiasm is giving way to a second stage in which intelligent community planning leading to coördinated action must predominate. Leadership and support are needed from many social groups and especially from public health physicians and educators. Experience gained from attacking other public health problems during the past generation must become integrated in the area of public education about alcoholism. Public health leaders are in a position to make a significant contribution to correction of this serious social and health problem.

The Laboratory of Applied Physiology of Yale University has been active in research on problems of alcohol for twenty years. The physiological effects of alcohol on the human body and the biochemical action by which the body disposes of alcohol have been thoroughly explored. Through the Section on Alcohol Studies, established in 1941, specialists in various fields have studied the significance of the use of alcoholic beverages in our society and particularly the impact of alcoholism upon that society.

Eleven hundred students from all parts of the country have participated in sessions of the Summer School of Alcohol Studies which has been conducted by the Laboratory since 1943. Through the activities of the Yale Plan Clinic, established in 1944 as the first public clinic devoted solely to the diagnosis and treatment of alcoholism, broad experience in the individual and social implications of alcoholism and the medical and psychiatric factors in etiology and treatment have accumulated. The findings of this program have been publicized through the *Quarterly Journal of Studies on Alcohol* and through hundreds of monographs and reprints which are available. At no time in the past has there been at hand as comprehensive a body of knowledge about alcohol and alcoholism as is to be found today. What is lacking is coöperation, through which interpretation of this material and later the application of such knowledge in practical situations throughout the country may be insured.

A constructive step in the dissemination of knowledge about alcoholism was taken during August, 1950. Representatives of 16 State Commissions on Alcoholism met at the Yale Summer School and established the National States' Conference on Alcoholism. The objectives of this organization are fourfold. It will function as a medium for the exchange of ideas on the entire problem of alcoholism. It will make available to states considering legislation on alcoholism data arising out of experience in other state-sponsored programs. It will seek to encourage and coöperate with all groups carrying on study and research on questions of alcohol and alcoholism.

States now members of the conference include: Alabama, Connecticut, Louisiana, New York, Michigan, Mississippi, New Hampshire, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, Vermont, Virginia, Utah, Wisconsin, and the District of Columbia.

Officers of the National States' Con-

ference on Alcoholism elected for a two year term are President, Ernest Shepherd, Executive Director, New Hampshire Commission on Alcoholism; Vice-President, Dr. Jay Brightman, Albany, Director of Medical Services, New York State Department of Health; Second Vice-President, Kenneth Lee, Richmond, Va., Director of the Virginia Division of Alcohol Rehabilitation; Secretary-Treasurer, Dudley P. Miller, Ph.D., Executive Director, Connecticut Commission on Alcoholism.

In 5 years, machinery for the many-sided attack on the age-old problem of alcoholism has been mobilized. Experience of the next decade will demonstrate whether or not public support, and particularly the support of public health leaders, will make it possible for this machinery to operate constructively and effectively.

Ford Foundation

The trustees of the Ford Foundation announced plans for the Foundation's operations on September 26, 1950. Two hundred and thirty-eight million dollars resources will make the Foundation the largest private philanthropy in the world. Mr. Paul G. Hoffman is the director. The purpose of the Ford Foundation as stated in its charter is "to receive and administer funds for scientific, educational, and charitable purposes, all for the public welfare."

The Trustees have outlined five particular areas for action:

Support activities that promise significant contributions to world peace and the establishment of a world order of law and justice.

Support activities designed to secure greater allegiance to the basic principles of freedom and democracy in the solution of the insistent problems of an everchanging society.

Support activities designed to advance the economic well-being of people everywhere and to improve economic institutions for the better realization of democratic goals.

Support activities to strengthen, expand and improve educational facilities and methods to enable individuals more fully to realize their intellectual, civic, and spiritual potentialities; to promote greater equality of educational opportunity; and to conserve and increase knowledge and enrich our culture.

Support scientific activities designed to increase knowledge of factors which influence or determine human conduct, and to extend such knowledge for the maximum benefit of individuals and of society.

In choosing these five areas the Foundation is "leaving to others the continued exploration of such vitally important fields as the physical sciences, medicine, and public health."

Particular activities under these headings which will be of especial interest to public health workers include:

The discovery, support, and use of talent and leadership in all fields and at all ages.

The clarification of the goals of education and the evaluation of current educational practices and facilities for the better realization of democratic goals.

The assistance of promising ventures in education making for significant living and effective social participation.

Advancement of the scientific study of man—of the process of development from infancy to old age; of the interaction of biological, interpersonal, and cultural influences in human behavior; and of the range of variations among individuals.

The scientific study of values which affect the conduct of individuals, including man's beliefs, needs, emotional attitudes, and other motivating forces; the origins, interactions, and consequences of such values, and the methods by which this knowledge may be used by the individual for insight and rational conduct.

Scientific study of the processes of communications, including their channels and content, and their effects upon human behavior.

The scientific study of the causes of personal maladjustment, neurosis, delinquency, and crime, and the improvement of methods for prevention and cure.

Increasing the use of the knowledge of human behavior in medicine, education, law, and other professions, and by planners, administrators, and policy-makers in government, business, and community affairs.

The Opportunities of the Industrial Hygiene Section*

C.-E. A. WINSLOW, DR.P.H., F.A.P.H.A.
Editor, American Journal of Public Health,
New York, N. Y.

DURING the past few years, there has been considerable discussion, in the corridors and at the luncheon table, of the future of the Industrial Hygiene Section. Although this is one of the older Sections of our Association, antedating all but the Health Officers, Laboratory, Statistics, and Engineering Sections, it has been not uncommon to hear doubts expressed by pessimistic members as to its place in the framework of the American Public Health Association and its relation to other organizations representing the field of industrial health.

The increasing vigor of this Section in the last two years has stilled some of these doubts; but it seems timely to bring the whole issue into the open and discuss it freely and frankly.

It is true, of course, that there are many other organized groups operating in this general area of interest, as pointed out in the recent report of our Sectional Committee on Inter-Society Coöperation.[1] Some of these, such as the American Conference of Governmental Industrial Hygienists, the American Industrial Hygiene Association, and the Industrial Hygiene Foundation, cover rather closely the general field of this Section of the American Public Health Association. Other societies offer professional contacts in special sectors of industrial hygiene: the American Association of Industrial Physicians and Surgeons, the Council on Industrial Health of the A.M.A., the American Association of Industrial Dentists, and the American Association of Industrial Nurses. Still others touch the field of industrial health in respect to some special problem, such as the American Standards Association, the National Safety Council, and the American Society of Heating and Ventilating Engineers.

This is by no means an abnormal situation. It is entirely proper and desirable that each one of the thirteen groups represented by Sections of the American Public Health Association should have also its own specialized professional group. The health officer belongs to the A.M.A.; the dentist to the A.D.A.; the nurse to the A.N.A. and the N.O.P.H.N.; the laboratory worker, to the Society of American Bacteriologists or the American Chemical Society; the statistician to the American Statistical Association; the engineer to the A.S.C.E. and the American Water Works Association; and so forth.

Since this is the case, what reason is there for the existence of the American Public Health Association?

The reason is obvious and cogent. The purpose of this Association is to combine and coördinate the efforts of diverse groups of specialists in one common cause, the promotion of the health of the American people. Its meetings and

* Presented before the Industrial Hygiene Section of the American Public Health Association at the Seventy-eighth Annual Meeting in St. Louis, Mo., October 31, 1950.

its *Journal* provide a common ground for planning the total strategy of a great social campaign.

The members of this Section of the A.P.H.A. do not represent a very large group—as compared with the vast body of part-time physicians and nurses employed in some form of industrial service. Dr. Greenburg has been good enough to provide me with the following up-to-date information as to the actual number of persons employed in this field by state, city, and county units in the present year (not including the staff of the U.S.P.H.S.).

Directors	54 *
Physicians	45
Nurses	35
Chemists	68
Engineers	163
Industrial Hygienists	91
Inspectors	13
Statisticians	2
Sanitarians	11
Laboratory Technicians, Engineering Assistants, X-ray Technicians, Draftsmen, etc.	22
Consultants (Various Classifications)	6
Total	510

* 20, medical; 34, non-medical.

It is on these 500 men and women that the future of industrial hygiene—as a constructive public health discipline and not as a hand-to-mouth safety and first aid service—must depend.

Historically, it is true that the basic motive which has stimulated the initial development of your profession has been the desire to improve the working environment, to control the use of noxious materials, and to raise the sanitary level of the workplace. The interest of many of you has been primarily in toxicology; and I believe it would be highly desirable to devote one of your sessions each year to a well planned symposium of current contributions in this field.

Even in this specialized area, intimate contact with the administrative public health agencies is of primary importance. The Office of Industrial Hygiene and Sanitation of the U.S. Public Health Service (dating, like this Section, from the year 1914) contributes year by year more than any other single agency to the furtherance of basic knowledge in the fields concerned. In most of the 48 states, the state department of health is the primary source of counsel as to industrial hygiene problems. The outstanding exception is the excellent service provided by the New York State Labor Department; and the interest of that department in the American Public Health Association is well exemplified by our present chairman, Dr. Leonard Greenburg.

Your stake in this field, however, goes beyond industrial toxicology, your horizon is not limited by enveloping clouds of fumes and dusts. Public health, as a whole, began with sanitation. Its vision has broadened with every passing year; and so must yours. This is a Section of Industrial *Hygiene*—not of industrial toxicology. The Educational Qualifications of Industrial Hygienists as set forth by our Committee on Professional Education [2] reminds us that "in addition to his medical training and experience the industrial physician should have a good knowledge of community health problems; of epidemiology with special reference to the control of communicable and occupational diseases; basic training in physiologic hygiene with special emphasis upon adult health, nutrition, and mental hygiene. He should also have a good knowledge of the engineering contributions to the physiologic problems of environmental health; should be acquainted with the technics and services of public health practice including health education, industrial relations, economic responsibilities, and public health law. He should be trained so as to serve effectively in directing rehabili-

tation services for handicapped individuals; should be acquainted with the technics of accident prevention and safety; and should be especially prepared to secure and maintain friendly and adequate relationships with welfare agencies, physicians, and dentists engaged in private practice."

Similarly broad qualifications are specified for the public health nurse, the engineer, and the chemist in industry.

This concept of industrial hygiene has been admirably set forth in a recent contribution[3] by Dr. H. K. Abrams of the California State Department of Health which I strongly recommend for your perusal.

The approach of the Committee on Professional Education is based on the fundamental assumption that the function of industrial hygienists as a group is not merely to control the hazards of lead poisoning and silicosis but to advance in every possible way positive promotion of the physical and emotional health of the worker in industry. This is definitely a branch of public health, and constitutes one of the most fascinating and promising of all areas in that wide and comprehensive field. If you are that kind of industrial hygienist, you have much to contribute to this Association and it has much to contribute to your own professional achievement.

First and foremost, the Health Officers Section offers contact with the group of leaders who mold health department policy at an administrative level. If you believe that industrial hygiene is important and can convince the health officers of that fact, you will open the way for the solution of our most pressing problems. Industrialists have, in many instances, developed a keen interest in the effort to utilize technical services for the improvement of factory conditions; but health officers have been often lukewarm in their support of the movement. State departments—under the stimulus of federal grants—have accepted the purely sanitary features of the program but have rarely sensed its wider applications. Of city and county departments, I suspect that not one in ten realizes that it has any responsibility in this field. I urge that you call attention to the pregnant statement that " the local health department has the general responsibility of providing effective leadership in meeting all types of community health needs."[4]

Get your own health officers to read Dr. Abrams's words. "The California Department of Public Health believes that industrial health, like the other elements of public health, should be administered on the local level so far as practicable. Its Bureau of Adult Health promulgates the concept that a substantial part of industrial health service can be handled by extension of existing health services into the factory and field. The factory should receive a proportionate share of attention as, for example, the school now does." Arrange next year for a joint session with the Health Officers Section to discuss the wider responsibilities of the health department in the industrial hygiene field.

The provision of industrial hygiene facilities where none now exist can come —and can only come—from the health department. You can point with pride to broad and constructive programs in certain large industries; but in the past the complete lack of such programs for the small plant has been dismissed with a hopeless shrug of the shoulders. Yet the problem can be solved—by the development in industrial areas of small-plant industrial hygiene services under the auspices of the local health departments. There is no reason why this should not be done, except inertia. The health department which proposes such a plan could count on support from both industry and labor which would enormously strengthen its position in the community.

Such health department services

would, of course, involve general hygienic and sanitary supervision and, perhaps, health examinations. These examinations would lead to the necessity of therapeutic treatment; and this is a hard nut for the industrial hygienist to crack. There is ample precedent, however, for an attack upon the problem. We have much experience of successful (and unsuccessful) medical care services provided by the employer alone, by the worker's union alone, or by both in cooperation. The Medical Care Section can provide you with the results of such experience and help you in turn to give the industry and the union sound and wise counsel.

Your relations with the Engineering Section are close and obvious. Sanitary engineering is no longer confined in its purview to problems of water supply and waste disposal (though even here, it is in position to be of material aid to industry). The public health engineer is today as interested in the purity of the atmosphere as in that of the lakes and streams. Where major community problems arise, as at Donora, the sanitary engineer and the industrial hygienist must work hand in hand.

The Laboratory and Epidemiology Sections can assist in coping with such problems as brucellosis and Q fever which are far more significant industrial health hazards than many of the rare poisons with which you deal. Even more significant of course, are the ravages of tuberculosis and syphilis; yet how much attention has been paid to such diseases by the industrial hygienist in the past? We are on the very threshold of a new and most promising approach to the control of these maladies (and of diabetes and heart disease as well) by use of the techniques of multiphasic screening. I doubt if as much could be accomplished for the health of the industrial worker in any other way as by multiphasic screening programs provided in the factory for such workers.

Has the Statistics Section anything to offer to the wide-awake industrial hygienists? I believe it has. No competent health officer would plan his program without taking account of vital statistics in order to locate the problems of major importance. The industrial hygienist has at his disposal far more detailed statistical material, in the form of records, not of deaths, but of absenteeism. To the best of my knowledge, he has never used such data as a basis for the planning of his campaign. I suggest a joint committee of the Sections on Industrial Hygiene and Statistics to work out techniques for the use of industrial data on absenteeism in planning the industrial health program.

Correlation of the work of this Section with that of the Public Health Nursing Section has challenging possibilities. Just as the health department offers the only real chance of providing medical service for the small industry, so do the staffs of official and voluntary nursing agencies provide possibilities of nursing service for such industries. The N.O.P.H.N. has prepared a most useful pamphlet outlining what has been—and could be—accomplished in this field. Furthermore, effective contact of nurses now employed by industry with the American Public Health Association and the National Organization for Public Health Nursing could be of inestimable value in improving the quality of the services at present rendered. There is good reason to believe that the work of many of the nurses now employed in industrial plants falls far below the standards set by competent authority in this field.

The question of the role of dentistry in a comprehensive plan for promoting industrial health and efficiency might well be examined in coöperation with our Dental Health Section. How far would the provision of dental service in industry be useful and profitable? Would fluorine treatment yield dividends

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in reduced absenteeism and increasing production?

Dr. Abrams reminds us that "about 30 per cent of the labor force in the United States is female. Women workers have special problems of pregnancy, dysmenorrhea, and the problems arising from the stress of work added to domestic responsibilities. The maternal and child health program might with profit look into those industries in which there are large numbers of women workers. In one city, the health department holds well child conferences in the premises of a union hall."

The provision of a suitable mid-day meal is certainly a factor in the health, satisfaction, and efficiency of the industrial worker. Here, the Food and Nutrition Section has a message for you. In every phase of industrial hygiene it is important to secure intelligent cooperation; and the Health Education Section has techniques which will further the accomplishment of this task. Dr. Abrams raises pertinent questions in this regard. He asks, "does the health educator reach the organizations of the working man and woman in the same proportions as he does other groups? Does he furnish materials to the union newspapers; motion pictures and talks for union meetings and for union women's auxiliaries? Recently the U.S. Public Health Service and the Pennsylvania State Health Department organized a course in industrial hygiene and safety principles for shop stewards of the United Steel Workers in Pennsylvania. Why cannot this approach be employed for other public health matters?"

Aside from these Sections of our Association, the American Public Health Association program and *Journal* have featured—and will increasingly feature—the importance of mental hygiene. You are all familiar with the problem of the accident-prone employee; but it is a rare and exceptional industrial plant in which the emotional state of the worker, as well as the guarding of machinery, receives due attention.

Finally, industrial health objectives form a part of the general problem of adult health promotion; and this problem obviously interlocks with those associated with development of chronic disease programs and with the processes of vocational adjustment and rehabilitation. These topics all will receive increasing emphasis in the future deliberations of this Association.

If you find no place in the A.P.H.A. it is because you have found no true place in the great public health movement as a whole. Either you have conceived your own task too narrowly, as concerned with only a tiny fraction of the true field of industrial hygiene, with fumes and dusts alone and not with human beings; or—having the vision—you have lost the hope of bringing the administrative health authorities to a similar broad conception of the field. If you have discarded the blinders of the past and realize the truly vast challenges which confront you, if you visualize your job as the promotion of the health of men and women in industrial employment in the broadest sense, if you have the courage and determination to convince the health officer that the function of industrial hygiene is to promote in every possible way the advancement of the physical and emotional health of the worker in industry, you will find in the A.P.H.A., and only in the A.P.H.A., the stimulus and the inspiration and the opportunity to accomplish the mighty tasks which lie ahead.

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A Dental Health Program for Your Community

HOWARD J. STROUD, M.P.H., AND
CLARENCE L. BRUMBACK, M.D., M.P.H.

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DENTAL health is receiving a great deal of attention as an integral part of the total health program. Many communities and local health departments are considering ways of increasing emphasis on this important aspect. Some communities have been unable to do much because of lack of funds, inadequate facilities, or for other reasons.

In 1948, the dental health program in Oak Ridge consisted of dental inspections of school children, follow-up on defects found, some dental health education, and a corrective program financed by the local Lions Club for children whose parents could not pay for necessary treatment. These various phases were not organized into a coördinated program. There was some interest in sodium fluoride application, but there seemed to be no immediate possibility of incorporating this feature into the public health program. Then a series of events took place which changed the picture.

PLANNING

In September, 1948, representatives of the Oak Ridge Junior Chamber of Commerce approached members of the Department of Public Health relative to the possibility of obtaining a sodium fluoride program for school children. The advice of the Tennessee Department of Public Health was sought, which resulted in a visit by Dr. C. L. Sebelius, Director of the Division of Dental Hygiene, Tennessee Department of Public Health. Representatives of all local agencies and groups interested in dental health were invited to attend a meeting with Dr. Sebelius. From this group, a committee was formed to study local needs and resources and to explore possible programs. This committee included representatives of the practising dentists and physicians, schools, Parent-Teacher Associations, service clubs, Welfare Department, and Public Health Department.

Although Oak Ridge is considered to have a rather "select" population from the socio-economic standpoint, studies made on school children showed that dental caries was present in about 20 per cent of children in the first grade and increased to 87 per cent in the 12th grade. The need for a coördinated dental health program was thus well established.

The committee early came to the conclusion, with the aid of competent advice, that any proposed program should not be limited to sodium fluoride applications. Dental inspections were already being done in the schools by the Department of Public Health. Dental correction, formerly sponsored by the Lions Club for applicants certified by the Welfare Department, was being financed by the Community Chest. The committee agreed that a great deal more

* Recently appointed Director of Palm Beach County Health Department, West Palm Beach, Fla.

dental health education and coördination was necessary.

An opportunity to see a demonstration program was presented when a U. S. Public Health Service sodium fluoride team was stationed near Oak Ridge. The "fact finding committee" decided that a limited sodium fluoride program would be possible with one dental hygienist working under the supervision of the dental consultant to the Department of Public Health. Since a single dental hygienist would not be able to treat children of all recommended age groups, it was further decided that fluoride applications should be limited to one age group for the first year. Recommendations finally presented by the committee were as follows:

1. Dental health education should be the first objective of the program and should encompass all phases of dental health. It should be directed toward children of all ages and their parents.
2. A dental hygienist should be secured, preferably one with teaching experience.
3. Sodium fluoride applications would be given only to children in the second grade during the first year. These children would receive more benefit than older children, and their total number most nearly approximated the estimated load which could be conveniently handled during the school year.
4. All community efforts for dental health should be coördinated into a single program.
5. General policies should be determined by a lay council, guided by advice of professional members.
6. Actual administration of the program should be carried on by the Public Health Department and its dental consultant.

Financing was next considered. The public health budget included a small amount for dental health, but this was wholly inadequate to finance the contemplated program. Economy measures would not permit increasing the budgeted amount. Funds would, therefore, necessarily come chiefly from other sources. The Junior Chamber of Commerce volunteered to buy all necessary equipment. The Oak Ridge Community Chest agreed to furnish whatever additional funds might be necessary to operate the program.

Dental corrections already being financed by the Community Chest were incorporated in the new program, thus giving it four aspects:

1. Dental health education
2. Sodium fluoride application
3. Dental inspection
4. Dental correction

With financing solved, the next problem was to secure a dental hygienist. The salary had been set sufficiently above the median to attract a well qualified person; but the most desirable feature of the position proved to be the opportunity of participating in the organization of a new program. Four applications were received by writing to schools of dental hygiene. The candidate selected had the desired teaching experience.

The lay group responsible for general administration of the program adopted the title of Oak Ridge Dental Health Council. This organization took immediate steps to incorporate in order to be able to discharge financial and other responsibilities.

The need for assistants to help the dental hygienist with sodium fluoride applications was discussed with representatives of school administration. The schools had a program for senior high school students through which they could gain experience in a variety of occupations, receiving school credit and a wage for the work performed. Arrangements were made for some of these students to assist the dental hygienist. Additional volunteer assistance was promised by the P.T.A. groups of the various schools.

Personnel policies applicable to the dental hygienist were developed by the Council and its professional advisers. These policies included salary ranges,

increments, vacation, sick leave, inservice training, relationship with official and nonofficial agencies, responsibility, etc. Policies were also prepared to cover the assistants to the dental hygienist.

OPERATION

Responsibilities of the dental hygienist require understanding of the community, its agencies, and organizations. Therefore, a careful preservice orientation was planned, including the community, its official and voluntary agencies, particularly the health and welfare organizations, and the schools.

The program actually started with the beginning of school in September, 1949. Equipment is portable so that it can be readily moved from one school to another. The itinerary for the year was determined coöperatively with the school administrators. Before proceeding to any school, the dental hygienist held a conference with the principal and teachers. The district public health nurse and the public health educator were usually present at such meetings. At this time, the exact date was set for starting in a particular school. Plans were made for visits by student groups and parents, dental health teaching in classrooms, and special demonstrations. Schedules were prepared for giving sodium fluoride treatments. Necessary records and forms used in the program were devised before the beginning of the school year. One of these is a letter to teachers explaining the program and the role of teacher participation. Another is a letter to parents of children who are eligible to receive sodium fluoride applications, explaining the purpose and requesting permission. Records were devised for the individual child receiving prophylaxis, with space for treatment and inspection results. Similar records were prepared for classrooms.

All policies and procedures have been approved by an advisory committee composed of three practising dentists. This is considered vital to the success of the program since it assures sanction of all phases by the dentists. Without such approval, no dental program can be successful.

Educational materials, including kits, books, and models, were purchased from the American Dental Association. Literature approved by the dental advisory committee was obtained from a variety of sources. Special leaflets, posters, charts, radio scripts, and newspaper articles were prepared by the public health educator, the dental hygienist, students, and teachers. These materials proved very helpful in securing an understanding of the principles of dental health.

In the stimulation of parent interest in the program, members of the Parent-Teacher Associations played an active part. These groups have recently formed lay health committees in each school, and each committee has a dental health subcommittee. In order to enlarge and strengthen the Dental Health Council, the chairmen of these subcommittees have been made active members of the Council. Through the efforts of these lay groups, special demonstration programs were developed to which all parents and other interested citizens were invited. Some of these programs were held at night in order to obtain larger attendances. At such times, movies were shown, various phases of dental health were discussed, educational materials were displayed and distributed, and all parents were given an opportunity to obtain information on dental problems.

During the school year, there are approximately 1,000 hours available to the dental hygienist for work with school children. In Oak Ridge, there are nearly 900 second grade children at the present time. Allowing one hour per child for inspection, initial cleaning, and four applications of sodium fluoride, a small amount of time remains for other

work. However, children of other grade levels, in company with their teachers, visit the operation in scheduled groups. At such times, the hygienist makes use of dental models, oversized toothbrushes, posters, and other devices in order to present various aspects of dental health. These visits are correlated with classroom teaching.

The equipment used in the fluoride program consists of a portable dental chair, three folding chairs, compressor, operating light, motor, instruments, and necessary supplies. In order to facilitate sodium fluoride applications, wooden platforms were constructed to raise the chairs to a comfortable working height.

Four second grade children are taken from their classes at a scheduled time to a separate room where the applications are given. Each receives an inspection, prophylaxis, and sodium fluoride application on the first visit; on the remaining three visits sodium fluoride only. Dental health education is an integral part of the program at all times.

Dental inspections of children in grade levels other than the second were conducted by the dental consultant. Included were children of the fifth grade whose records will be compared with those of the present second graders when the latter are in the fifth grade.

Follow-up on defects discovered during dental inspection is one of the most important features of the program. Participating in this phase are the dental hygienist, public health nurses, teachers, and members of the lay health committees. Children in need of corrective work whose parents cannot pay for this service, can receive necessary treatment through funds made available by the Community Chest. Referrals for such care are made by the teachers and public health nurses to the Welfare Department where eligibility is determined according to current standards. Final action on all referrals is taken by the Dental Health Council on the basis of recommendations submitted. Appointments are made with practising dentists who are reimbursed on an hourly basis.

The summer program was planned to give an opportunity to approximately 400 three year old children for sodium fluoride treatments. Time was set aside during the summer for evaluation of the past year, planning of next year's program, and one week for orientation of the dental hygienist with the U. S. Public Health Service sodium fluoride demonstration team. The orientation is considered very desirable to help the hygienist keep abreast of changing techniques, and add to her store of information on progress in dental science.

CONCLUSIONS

In the development and operation of the Oak Ridge dental program, a number of observations have been made which may serve as guideposts to other communities. Some of these may be presented as follows:

1. The first step should be a survey of local needs in order to determine the nature and extent of the problem.
2. A list of resources already available to aid in meeting the needs should be prepared. This should include practising dentists, official and nonofficial agencies, civic organizations, parent-teacher associatons, etc.
3. Resources outside the community should be called upon early in planning. The State Public Health Department can help in many ways. The U. S. Public Health Service has many aids available for use.
4. Local practising dentists should be active members of the planning group from the start. A committee of dentists should advise the group throughout the inauguration and operation of the program. No action should be taken without approval of the dentists.
5. In program planning, full cognizance should be taken of local needs and resources. Programs developed in other communities can only offer guides and suggestions.
6. In planning, representatives of all local organizations having an interest in health should be invited. Their advice can help to

avoid many pitfalls and their active interest is essential to a really successful program.

7. If the program operates under the auspices of a lay group as in Oak Ridge, the active administration and supervision should be provided by the local public health department.

8. Before a program begins operation, policies and procedures should be agreed upon. Personnel policies should be established before employing anyone.

9. If funds are to be administered by the lay governing council, this council should be incorporated. Officers responsible for such funds should be bonded and the budget should include an amount to pay for a periodic audit of accounts.

10. In program planning, every opportunity for education should be considered. As many community residents as possible should be encouraged to participate in the organization and operation. In Oak Ridge, several hundred people have taken part in the planning or operation up to the present time. They are members of various community official agencies, private practitioners of dentistry and medicine, housewives, members of clubs and voluntary organizations, scientific workers, teachers, students, business men, and private citizens not falling into any of the above categories. Each has made a valuable contribution to the program and all have learned something about dental health.

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A Statistical Study of Factors Influencing the Quality of Patient Care in Hospitals

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IN recent years the area covered by hospital licensing regulations has been significantly enlarged. A study of the history of hospital regulations shows that initially such legislation was generally restricted to maternity and mental hospitals, and simply placed requirements upon certain physical features of such institutions and upon the reporting of statistics. Today, more and more states are passing comprehensive hospital licensing legislation involving the regulation of hospitals within the state. The regulations growing out of this legislation involve almost every phase of activity in which hospitals are engaged. This broadening of the scope of hospital licensing legislation has brought into sharp focus the need for more information on the factors that influence the quality of a hospital. This paper is a report on the methods used and the progress made in a research program which has been in progress during the last two years in the State of Indiana.

The initial impetus * that gave rise to this research program came from the Division of Hospital and Institutional Services of the Indiana State Board of Health which is responsible for the administration of the hospital licensing program in the State of Indiana. This program grew out of the Hospital Licensing legislation passed by the Indiana General Assembly in 1945. The regulations † which were developed to instrument this legislation are very comprehensive and have been considered by many to be a model set of hospital regulations.

The Hospital Licensing Act established a hospital licensing council and invests the Council with the responsibility of passing on all applications for licenses. The Division of Hospital and Institutional Services appreciated the need of a statistical analysis of the information obtained in surveys of hospitals in order to have a means of presenting reports to the Council in a concise, objective manner. It was felt that it should be possible to arrive at a method to show the problems of individual hospitals in relation to other hospitals of like character, the problems common to hospitals of various sizes and types, and to show improvement in individual and

* During the early stage of the study, Dr. R. E. Serfling as Statistician for the Indiana State Board of Health, gave able assistance in formulating the scope and direction to be undertaken by this research project. Myron Willis, Verne G. Robinson, and the entire staff of the Division of Hospital and Institutional Services have assisted in the research carried out under this project.

† Copies of these regulations may be obtained from the Division of Hospital and Institutional Services, Indiana State Board of Health, Indianapolis, Ind.

groups of hospitals from year to year. This need can be more fully appreciated when one notes that in 1947, when the hospitals in the state were first surveyed under the new licensing program, it was found that not a single hospital fully complied with all of the regulations, and only three hospitals, at least partially, complied with every regulation.

In the beginning, the statistical appraisal was considered as an administrative tool. As time went on, it became apparent that statistical evaluation of the findings obtained in surveys of hospitals would define problems existing in hospitals in relation to the various professional services. Making this information available to professional groups would be of value to them in planning their programs of assistance for their members. Thus, one soon recognized that the statistical evaluation of hospital regulations required information on the factors that influence the quality of a hospital. This research program may be thought of as having a double purpose: (1) to determine the factors which influence the quality of a hospital, and (2) to evaluate the hospital licensing regulations of the State of Indiana.

A study of hospital literature has thus far failed to reveal any significant contributions, as far as methods are concerned, and hence this study has suffered from the fact that much of the work done has been exploratory in nature. Several sets of regulations with accompanying rating scales have been encountered in the literature. The three most significant of these are: The American College of Surgeons Hospital Rating Form, the Hospital Standards Developed on a Point System by the Division of Hospital Facilities of the Kansas State Board of Health, and the Schedule of Points for Payment of Hospitals developed by the Health Service Planning Commission of the Province of Saskatchewan. Yet these scales can at best be considered as furnishing sets of standards with which to compare any new standards that may be derived, since each scale was developed with a purpose in mind that differs from the one which motivates this present program.

THE METHOD

The current study has centered around the study of two different measures: (1) a measure of the importance of "regulation items" in determining the quality of a hospital, and (2) the actual compliance of hospitals in the State of Indiana with regard to these regulation items.

The first step taken to obtain these two measures was the development of a comprehensive set of items which, to a greater or lesser degree might influence the quality of a hospital. These items will be referred to as "regulation items." In this study it has been assumed that the quality of a hospital is measured by the quality of care given patients. Though this "quality of care" definition is quite broad and generally has proved to be satisfactory, certain problems have arisen that do not fit into the above definition, i.e., the quality of a hospital may in part be determined by the contributions the hospital makes to the social welfare of the community. The above definition has been retained, however, until a more comprehensive definition of quality can be evolved. The list of regulation items was developed by expanding the hospital regulations of the State of Indiana. These regulations were first broken down into individual items so that each item dealt with but a single phase of a hospital's activity. This breakdown process yielded some 367 regulation items which were then evaluated. No attempt was made to include items having to do with fire prevention in the present study since it appears that this area requires special attention.

The evaluation step required that there be associated with each regulation item a measure of its importance in determining the quality of care given to

patients in a hospital. To evolve such an index the technique of point rating by a panel of experts was used. That is, a group of experts was asked to evaluate each item, each member making his evaluation independent of the other members of the group. A study of the regulation items revealed that in many cases the statements were too involved and complicated to expect an individual to make a reliable evaluation. To overcome this difficulty many regulation items were rephrased into simple, direct, more or less equivalent rating statements which were used in this phase of the study in place of the more comprehensive regulation items. An example of such a rephrasing is:

Regulation item 8:10.1

Absence of Personnel Because of Communicable Disease:

Personnel absent from duty because of any communicable disease, infection or exposure thereto shall be excluded from the hospital until examined by a physician designated for the purpose, and each shall be certified by him to the administrator as not suffering from any condition that may endanger the health of the patients or employees.

Rating Statement 8:10.1

A doctor's certificate is required from personnel returning to work from an absence due to a communicable disease.

In selecting raters an attempt was made to obtain individuals on the panel who represented the various groups associated with a hospital. Table 1 gives a training and occupational breakdown of the panel of raters:

These 87 raters were selected from the entire country for their professional standing and their interest in the overall problem considered in this study. Since the total number of rating statements involved was so large that it was feared that an unsatisfactory response would be obtained to a request to rate so large a number of items, a reduced set of rating statements was used in the first mailing. This reduction in number of regulation statements to be used in the first rating deck made it possible to include a limited number of statements associated with the quality of a hospital that were not present in the Indiana Hospital Regulations. These were inserted to enable us to check on how comprehensive the set of statements derived from the Indiana Regulations actually were. Each statement was typed on a separate 2 in. by 3 in. card, and the deck of 208 rating cards with a set of instructions was sent to each rater. These instructions essentially requested the rater to rate each statement on the scale 0, 1, 2, 3, 4, 5, according to his impression as to its importance in determining, either directly or indirectly, the quality of care given a patient—a rating of 5

TABLE 1

Training and Occupations of Panel of Raters

Occupation	*Present Activity*	*Training*
Lay with respect to hospital field	6	26
Physician	2	18
Nursing Service	0	21
Hospital Administrator	44	5
Nursing Administrator	3	0
Hospital Consultant	3	0
Official in medical or public health field	20	0
Educator in medical or public health field	3	0
Pharmacist	0	3
Dietitian	4	6
Engineer	0	5
Record Librarian	2	3
Total	87	87

TABLE 2

A Study of Geographical Bias—Analysis of Variance

Source of Variation	*d.f.*	*SS*	*MS*
Geographical Groups	1	1.67	1.67
Hospital Areas	10	381.08	38.11
Geographical Groups x Hospital Areas	10	28.59	2.86
Error	803	1,211.63	1.51
Total	824	1,622.97	

$$F_1 = \frac{1.67}{1.51} = 1.11,\ P > .05 \qquad F_2 = \frac{2.86}{1.51} = 1.89,\ P \doteq .05$$

indicating an absolutely essential item and that of 0 a nonessential item.

The raters were instructed to assume a large hospital (over 200 beds) in making their ratings if such an assumption was necessary. The returns on the first mailing were very good; out of the 87 rating decks sent out 74 rated decks were returned. The comments received on the rated cards are of particular interest and are scheduled for special study at an early date. This first mailing yielded ratings for 106 of the 327 regulation items. A study was made of the returns from the first mailing to see if, for convenience, the second mailing, which would obtain ratings on the remaining regulation items, could be restricted to residents of Indiana. The 74 raters who had returned the first rating decks were divided into two groups, Indiana residents and nonresidents. The rating statements were divided into eleven hospital areas selected from the following areas: Administration, Medical Staff, Patient Care, Medical and Hospital Records, Nursing Department, Emergency Service, Surgical Service, Obstetrical Service, Nursery, Pediatrics, Contagious Disease Service, Dietary Department, Pharmacy, Laboratory Service, and Radiology. A test was made by means of an analysis of variance to see whether a geographical bias existed with respect to ratings between these two geographical groups and between the eleven areas. Table 2 summarizes the result of this analysis.

F_1 can be interpreted as testing the difference in overall response between the two geographic groups, while F_2 tests the differential response between the ratings given by the two geographical groups and the eleven hospital areas. Since neither of these two tests gave significantly different results, it was concluded that the second mailing could be restricted to Indiana residents though it was recognized that a reduction in total number of raters is generally undesirable. The number of ratings obtained for these statements was thus reduced to 27. The average rating for each statement was computed and used as the "rating score" for the statement. The standard deviation of the ratings for each statement were also computed.

The standard deviation of the ratings can be thought of as being a measure of the consistency of the ratings obtained. As is to be expected in ratings of this kind, the standard deviations were found to be strongly correlated with the rating score (mean). Each standard deviation was adjusted therefore for its corresponding mean rating, and if the adjusted standard deviation proved to be high (greater than one standard deviation above the mean), the return for this item was considered to be inconsistent. An inconsistent item can be interpreted as one that yielded an inconsistent response pattern (too much variation in the ratings given by the panel). This inconsistency may be caused by a variety of factors, i.e., ambiguity in the statement, differential response between groups of raters, etc. Examples of inconsistent statements are:

Rating Statement 4:1.1

The hospital license is conspicuously posted on the premises.

Rating Statement 8:2.1

All graduate nurses are licensed to practise nursing in the state where employed.

One of the first questions which arose in connection with this method of obtaining rating scores for the regulation items was whether or not an occupational bias existed in the responses obtained from the panel of raters. It was feared that a rater would have a tendency to overrate statements within the area of his training or his present activity. To check such a bias, a test was made to see if a differential response existed between occupational groups and hospital areas. The occupational groups listed in Table 1 were used in this investigation and the 74 raters were classified into these groups according to their present activity. The rating statements were classified into the 15 hospital areas listed above. The results of the analysis are summarized in Table 3.

The F can be interpreted as testing the existence of a differential response between occupational groups and hospital areas.

From this analysis one concludes that there exists some differential response between hospital areas for the several occupational groups. To check on how this differential response shows up in the ratings, individual graphs were made showing the relationship between the overall rating score received by statements within each hospital area with the rating score given the statements by the individuals in the given occupational group. These later average ratings were adjusted to allow for the overall bias that exists between occupational groups. A typical graph is given below. The differences which were significant at the 5 per cent probability level are indicated by a long vertical arrow. It is these differences that make the differential response between occupational groups and hospital areas significant. Table 4 lists for each occupational class the hospital areas for which they gave a biased response.

TABLE 3

Study of Occupational Bias—Analysis of Variance

Source of Variation	*d.f.*	*SS*	*MS*
Hospital Areas	14	353.70	25.26
Occupations	9	279.67	31.07
Raters	73	1,915.23	26.24
Statements	89	1,500.12	16.86
Occupations x Hospital Areas	126	240.84	1.91
Error	6,309	5,154.82	0.89
Total	6,620	9,444.38	

$$F = \frac{1.91}{0.89} = 2.15,\ P < .01$$

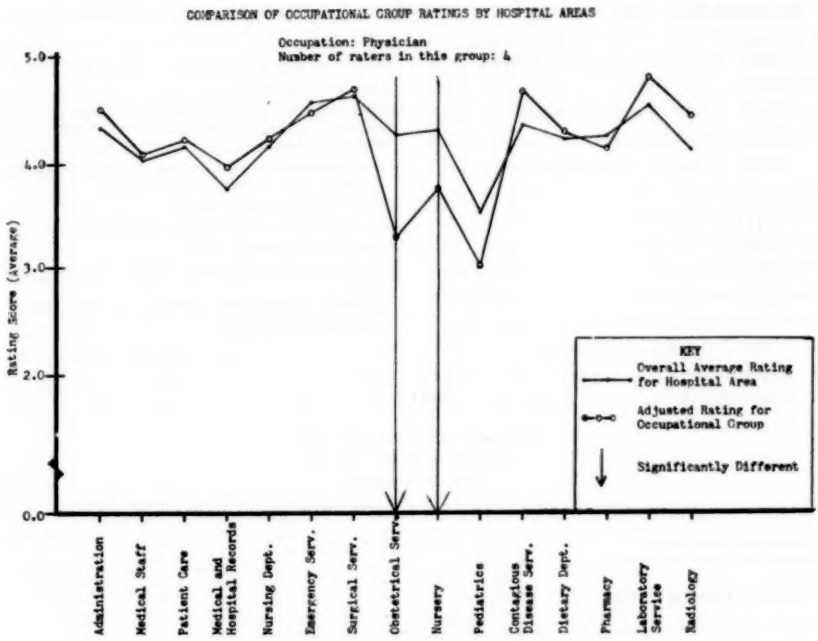
TABLE 4

Hospital Areas with Biased Responses for Occupational Classes

Occupational Class	*Hospital Area Showing Biased Response*
Dietitian	Medical Staff —, Surgical Services +
Officers in Public Health Field	Medical Staff +, Medical & Hospital Records —, Nursing Dept. —, Emergency Service +, Surgical Service +
Nursing Administrator	Medical Staff —
Physician	Obstetrical Service —, Nursery —
Lay	Medical Staff —, Medical and Hospital Records —

— indicates below average rating
+ indicates above average rating

FIGURE 1



Those occupational classes not listed in Table 4 did not exhibit significantly different ratings in any of the hospital areas. The differences indicated in Table 4 should be considered at best as only tentative since the small number of raters involved in some of the occupational classes enable this study to show up only the most apparent differences.

It is of interest to note that in none of the corresponding relationships, such as physicians' ratings in the medical staff area, was there a significant difference. This means that the biases which did exist were not directly associated with the hospital area of direct concern to the rater. It is this feature that allows one to place confidence in the rating scores obtained by averaging the ratings of all raters.

To obtain a measure of the actual compliance of hospitals in the State of Indiana to a regulation item, the survey manual used by the hospital Consultants of the Division of Hospital and Institutional Services when inspecting a hospital was utilized. This compliance index was thought to be more significant if it reflected the conditions of hospitals before they came under a comprehensive licensing program; and hence, the results from the initial surveys of hospitals (1947–1948) were used. It should be mentioned that these survey manuals were not evolved for this particular purpose; and hence compliance data could be obtained on only about 60 per cent of the regulation items. No partial credit was allowed in evolving the compliance index. The index simply measures the per cent of hospitals fully complying with the regulation item. The hospitals that were surveyed were classified into four size groups for this purpose: those

TABLE 5

Regulation Items with Significantly Low Compliance Index in Relationship to Rating Score

Regulation Item	*Identification Symbol*	*Subject*
18:1.1	a	Plumbing facilities.
28:1.2	b	Health certificate for food handling employees.
8:5.2	c	Complete physical examination for registered nurses before employment.
11:3.1	d	Fixed responsibility for reporting to local health department cases of communicable disease.
28.4.2	e	Posting of hand washing notices.
5:1.1	f	Governing Board is the supreme authority.
10:2.1	g	Register of all deaths is kept.
8:6.2	h	Duties of all non-professional workers are clearly defined.
11:3.3	i	Reports of syphilis and gonorrhea are submitted to State Board of Health.

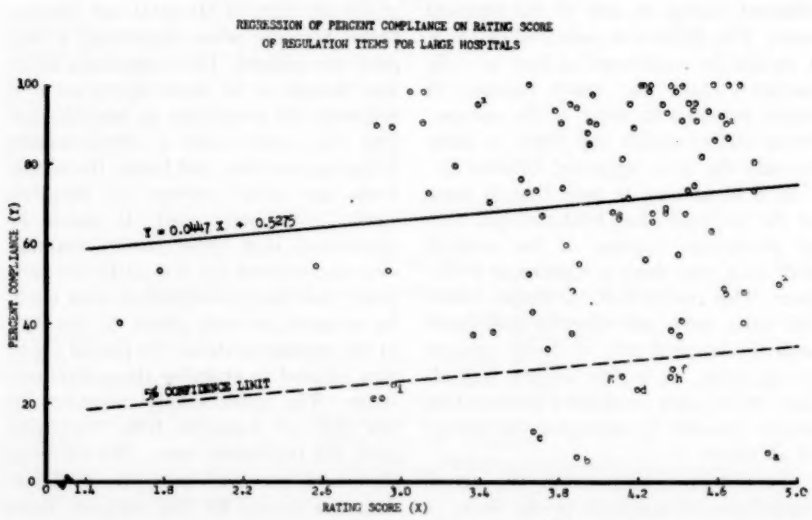
TABLE 6

Chi-square Computation Sheet
Regulation Item: 32:2.1
Size of Hospital

	0–24	*25–49*	*50–99*	*100 and over*	*Total*
Number of Compliances	12	15	16	29	72
Number of Non-Compliances	8	11	7	1	27
Total	20	26	23	30	99
Compliance Index (percentage)	60	58	70	97	73

$$X^2 = \frac{2.67}{.1971} = 13.54,\ P < .01$$

FIGURE 2



with under 25 beds (25 hospitals), between 25 and 49 beds (28 hospitals), between 50 and 99 beds (26 hospitals), and 100 beds or more (43 hospitals). The compliance index for each regulation item for each of these four groups of hospitals and the rating score for the item serves as the basic data to be used in the present analyses.

ANALYSIS OF FINDINGS

Two studies have been completed using the rating score and the compliance index for regulation items. The first was made to determine what relationship, if any, exists between the rating score for a regulation item and its compliance index. Since the rating score (x) was evolved assuming a large hospital, the compliance index (y) used to study this relationship was that obtained from hospitals with at least 100 beds. As a first step toward studying the relationship, the linear correlation coefficient and its associated regression line between these two variables were computed. The correlation was found to be $r = +0.11$ with $N = 111$. Since so small a value of r is not statistically significant, one has no reason to discard the hypothesis that the natural development of facilities and procedures in hospitals is independent of their importance with respect to quality of patient care. An additional analysis has been made of the individual pairs of observations to

TABLE 7

Regulation Items Dependent Upon Size of Hospital

Regulation Item	*Subject*
	A. Compliance Increases with Size of Hospital
39:8.1	A separate, properly equipped formula room.
8:5.1	Written personal data required from applicants for employment in the Nursing Department.
7:1.1	Medical Staff is formally organized.
38:4.1	Separate surgical beds and wards are provided.
12:1.1	Discharged patients in need of further nursing care are referred to Visiting Nurse Assn.
32:1.2	O.B., Medical, Surgical and Pediatrics are segregated.
7:4.4	Medical Staff applicant is appointed annually by the Governing Board.
39:5.2	There is a suspect nursery.
32:2.1	The Maternity Department is physically separated.
39:8.2	No drugs are kept in the formula room.
	B. Compliance Decreases with Size of Hospital
8:11.2	A graduate nurse is on duty in each department at all times.
14:4.3	Nursery contains at least 200 cubic feet for each crib or bassinet.
	C. Small Hospitals (under 25 beds) Have Low Compliance
7:2.2	Medical Staff Meetings are held at least once a month.
10:1.1	Proper admission records are kept.
35:2.2	Complete laboratory records are kept.
	D. Medium-sized Hospitals (under 50 beds) Have Low Compliance
39:3.1	Labor rooms are available.
8:1.1	Nursing Department is efficiently organized.
28:5.4	Doors of all toilets are self-closing.
29:3.1	Dietitian initiates policies.
	E. Large Hospitals (100 beds and over) Have High Compliance
9:3.1	Registered Medical records librarian is "employed."
29:2.1	A qualified dietitian is "employed."
34:2.1	A registered pharmacist is "employed."
38:5.1	All tissues removed are examined both grossly and microscopically.
34:3.1	The pharmacist is responsible for all drugs.
8:9.2	There is a planned program for nursing department meetings.
32:1.1	Isolation facilities are available.
29:4.1	Meals served comply with recommended standards.
37:1.3	Non-infectious medical patients are segregated from infectious medical patients.

discover which regulation items are the principal contributors to this lack of correspondence. The significant items all fell into the category of having low compliance indices with respect to their corresponding rating scores. These items are listed in Table 5 in order of the size of the discrepancy.

Graph 2 showing the regression of the compliance index on rating score is given here. The significant regulation items are labeled using the identification symbol of Table 5. The areas included in the items listed in Table 5 are being studied more carefully.

The second study that has been completed was made to determine which regulation items were dependent upon the size of the hospital. The technique used was to test the hypothesis that there was no relationship between compliance index and size of hospital (for each regulation item). The Chi-squared test was used to test this hypothesis. A typical computation is given in Table 6.

The regulation items which, on the basis of this test, showed a significant relationship (1 per cent level) between compliance index and size of hospital, were separated into groups according to the type of relationship exhibited. These regulation items are listed by type in Table 7. Within each type the regulation items are listed according to the strength of the relationship.

A study of the regulation items listed in Table 7 is underway. It is hoped that this study will yield either modifications of the regulation items according to the size of hospital or will point out special areas where problems exist in various size hospitals which may form the basis for a research program in coördination of hospital activities.

SUMMARY AND CONCLUSIONS

This paper has been prepared to indicate the research methods used and to give some of the findings that have become available in what appears to be a relatively new field of investigation. The results given are not to be interpreted as being conclusive, nor has any attempt been made to give an explanation of the findings. More study is needed in the area of regulation items and their importance as well as in differentiations that exist with regard to size of hospitals before a comprehensive report can be made. Further study along these lines is in progress.

The authors would appreciate any suggestions, comments, or criticism that would help them in their research in this area.

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THE WHITE HOUSE CONFERENCE ON CHILDREN AND YOUTH

THE Mid-Century White House Conference on Children and Youth, which will convene in Washington on December 3, will be the fifth of a notable series of such conferences. The first was called by Theodore Roosevelt in 1909. At that time, even the simple idea that the need of a homeless child is for a *home*, not an institution, was a novel one. Acceptance of this principle stimulated the whole supervised foster home program, led to the condemnation of many archaic institutions for children, and to the alternative provision of allowances for dependent children, bringing reasonably normal home conditions for many thousands of our present citizens. Most important of all perhaps was the fact that this first conference provided the primary stimulus for the establishment of the U. S. Children's Bureau. The Second Conference, called by Woodrow Wilson in 1919 prepared the first important formulation of child health and child welfare standards. The third, called by Herbert Hoover in 1930, produced a report of 32 volumes which embodied the most comprehensive statement of the needs of children ever assembled. It provided a notable stimulus to the development of pediatrics; and its main conclusions were summarized in a Children's Charter which served for many years as a guide-post in this field. The fourth Conference called by Franklin D. Roosevelt in 1940, highlighted the importance of the child in a modern democracy.

Now the Fifth White House Conference is upon us; and, as in previous decades, the joint efforts of experts and of laymen, of governmental agencies and citizens, will contribute in significant degree to the development of an improved pattern of life for American children.

The Conference was proposed by the National Commission on Children and Youth in 1946, endorsed and planned at a special meeting of leaders of public opinion from 46 states, the District of Columbia, Alaska, Hawaii, Puerto Rico, and the Virgin Islands in 1948. The project is directed by a National Committee of 52 leading citizens; and the plans have been guided by four large Advisory Councils, representing national organizations concerned with the problems of childhood and youth; state and local committees (with every state and many

counties represented); federal agencies operating in this sphere; and finally organizations bringing in the fresh and vital stimulus of youth participation. Some 4,600 leading citizens will be invited to attend the Conference itself, including 1,800 state and local representatives and 1,000 representatives of national organizations.

The President of the United States will, of course, be the Honorary Chairman of the Conference; and the Chairman—as has been the case since 1909—will be the head of that branch of the government to which the Children's Bureau is responsible—in the present case, Oscar R. Ewing. The Vice-Chairmen will be Leonard W. Mayo, Mrs. Eleanor Roosevelt, Benjamin Spock, M.D., and George D. Stoddard.

These successive decennial conferences to promote the welfare of the children of the nation have been characterized by two major aims—to procure by intensive study accurate information on which progress may be based and to secure the widest possible measure of popular support for the objectives in view.

In both of these respects, the preparatory work for President Truman's Conference has gone far beyond the goals of its predecessors.

Federal, state, and local groups have been at work for the past two years on a Fact-Finding Report which will cover the basic objectives of healthy personality development as influenced by constitutional factors, by interpersonal relations, social structure and values and economic conditions; and by the impact of such institutions as the family, the schools, the churches, libraries, museums and art activities, health services, recreational organizations, conditions of employment, social services, courts and correctional agencies, and the armed forces. The reports of this study should go far beyond even the 1930 Conference report in furnishing a sound factual basis for future progress.

Still more significant is the breadth of interest and the vitality of the citizen support which has been enlisted in the planning of the December Conference during the past two years. More than 300 national organizations were represented at a meeting to discuss participation in the study program. Preparatory regional and state meetings have enlisted far greater citizen support than in any prior decade. Local committees have been organized not only in the states but in over one-third of the counties of the Union. It was estimated in July that over 100,000 persons had participated in local studies or in some other phase of this preparatory study, of whom some 15,000 were professional workers. One local representative reports, "This is the first time we've gotten the chief of police, the health officer, the superintendent of schools, the Chamber of Commerce, the County officials, the ministers and some other folks who ought to care about our kids together in our community; and we're going to keep them going, no matter what happens down there in Washington next December." This is real democracy, working at the grass-roots.

Most important of all, however, is the basic keynote which has been chosen by the planners of this Fifth White House Conference.

This keynote is expressed in the slogan—"A Fair Chance for a Healthy Personality"; and more fully in the statement of the National Committee that "The purpose of the Conference shall be to consider how we can develop in children the mental, emotional and spiritual qualities essential to individual happiness and to responsible citizenship, and what physical, economic, and social conditions are deemed necessary to this development."

In other words, we move on from the emphasis on physical and institutional environment, on basic pediatric services, on welfare programs, to the very heart

of the matter—the personality of the child and the mental hygiene forces which influence that personality. At the preliminary session on Planning for Children and Youth two years ago, this ultimate objective was defined as follows: "A child equipped to stand the stresses and strains of life, with a balance of strengths, physical, mental, moral, and spiritual; strengths which will bring to him personal satisfaction, with an adequate measure of self-expression and an ability to live harmoniously with others in whatever role he finds himself, and a willingness to carry his fair load at whatever level of development."

Our human relations, our ability to live peacefully and effectively with ourselves and with our neighbors, is fast becoming the most important problem of these troublous times. Specific, scientifically proven ways of accomplishing this end are certainly not clear today. Every thoughtful person realizes the extent to which we need research which will guide the way more effectively to our desired ends. But, in the meantime we can certainly use more widely and more effectively the knowledge of human behavior which we already possess. As the years have gone by we have realized more and more fully the vital importance of this problem.

The essence of the objectives of mental hygiene has been stated in eight words by Matthew Arnold, quoted in this column two months ago. He describes Sophocles as one "Who saw life steadily and saw it whole."

To see life "steadily." To supply an antidote for "the suspicious, frightened, angry people who spend their days in misery and make living difficult for the relatives and friends [and colleagues and constituents, on a wider stage] who must try to adjust to their mental and emotional disturbances." To avoid convenient catch-phrases such as "capitalism" and "socialization" and look at concrete situations as they are. To find and face the truth.

To see life "whole." To recognize mutual responsibilities. To understand that as St. Paul said, we are "every one members one of another." To comprehend and resist—with firmness, but without rancor—the undue influence of selfish business or professional, of craft or political groups. To ourselves play a constructive part in a widening social order for the mutual good of all.

This is a tremendous challenge which the Fifth White House Conference presents to you and to me. We must provide all possible facilities for research on the needs of children and supply the practical machinery for meeting such needs. But what we *do for* children is less important than what we *are to* children. Next to experience, example is the best teacher. If parents, teachers, and politicians, and professional workers can see life steadily and see it whole, we may have sound hope of surmounting the present crisis and building a better world for the future.

DIAGNOSTIC TESTS FOR CANCER

WE discussed in these columns, last month, certain administrative and educational advances toward the development of a more effective program of cancer control. Such a program, however, depends primarily on early and accurate diagnosis, since the successful treatment of cancer depends upon the removal or destruction of the lesion while it is localized and limited in extent.

For years the microscopic examination of tissue suspected as cancerous has been the ultimate test for diagnosis. The use of this method necessitates first of all a biopsy. To lead to biopsy there has to be some sign or symptom which calls attention to a tissue. Recently there have been certain important modifications of

the standard procedures referred to above. One of these has been the smear method of Papanicolaou [1] commonly called exfoliative cytology. This method depends upon the demonstration of atypical characteristics of individual malignant cells (as in an ordinary biopsy); but may be applied to the more easily accessible surfaces and discharges of the body. At first developed for detection of cancer of the uterus, it has now been extended to the examination of other body fluids and secretions, particularly from the lung. Although there has been considerable simplification in technique since the original report, the method is still time-consuming and requires the services of experienced cytologists. Possibly new optical techniques will make the cytological approach more widely adaptable. There are other methods adapted to the microscopic examination of small fragments of tissue—the fixation of small particles of tissue cells scraped from the surface of the lesion or separated by centrifugation from fluids—and the preparation of paraffin sections cut from this material, followed by suitable staining. Another method for the collection of small pieces of tissue for microscopic examination has been devised by Gladstone.[2] A gelfoam sponge is rubbed over the suspected area in the prescribed manner. This gelfoam is then processed, sectioned, and the stained preparations examined microscopically.

Since the microscopic examination is specific for only a small sample of tissue, attempts have been made to discover some biological test for screening the entire body. Accordingly, there has been considerable investigation of body fluids such as urine, feces, blood, and body secretions. These studies have been based on chemical changes, immunological principles, and enzymological principles.

Evaluation of such tests demands certain fundamentals. The satisfactory test must disclose cancer in its asymptomatic stages; the technique must be simple; and the results must be reproducible. There should be no false-negatives. Positives should be found only in patients with cancer, or at most in a few other conditions which could be eliminated by other diagnostic methods.

The extent of this type of investigation is indicated in a recent review by Homburger.[3] Going back only to 1930 and selecting those tests which had the greatest merit, his analysis embodied as many as 60 different procedures. One of these concerns the production of lactic acid by tumor tissues and its possible role as a means of early diagnosis. None has fulfilled the requirements for general acceptance as a means of early detection of cancer. Many are being studied further.

So far there has been little success in devising a test for all types of cancer. The results have been more encouraging in selected types of tumors, such as cancer of the prostate with its associated increase in acid-phosphatase, and the estimation of urinary gonadotrophins in the diagnosis of chorio-epithelioma of the testicles. As pointed out in a recent editorial in the *Journal of the American Medical Association*,[4] it is necessary to distinguish between the different purposes of these tests. For example, there is need for a test that can be used in mass screening of apparently well people. This would not have the same standard of performance as the test used to make a final diagnosis in equivocal cases. Different standards of performance have to be set up for tests having different purposes.

While the search continues for a satisfactory cancer test, or tests, our thinking must be reasonable and practical. We should not be too ready to accept new methods without careful evaluation, but on the other hand we should not be too hasty in our dismissal of proposed new tests. Above all, we should not permit premature exploitation of encouraging observations. We must continue to use microscopic examination adapted in every way possible and practicable. We must

develop alertness in both the patient and the physician. Between 70 and 80 per cent of cancerous tumors are accessible and subject to biopsy. In this group we have an easily available and accurate test for cancer. The need is for more biopsies of initial lesions.

1. Papanicolaou, G. N., and Traut, H. F. *Diagnosis of Uterine Cancer by Vaginal Smear.* New York: Commonwealth Fund, 1943.
2. Gladstone, Sidney A. Sponge Biopsy in Cancer Diagnosis. *Am. J. Med.* 6:849–852, 1948.
3. Homburger, F. Evaluation of Diagnostic Tests for Cancer. *Cancer* 1:143–172, 1950.
4. Editorial: Cancer Diagnostic Tests. *J.A.M.A.* 7:657, 1950.

THE PROBLEM OF RADIATION HAZARDS

THE term "Radiological Health" has crept increasingly into the vocabulary of health workers during the past twelve months, to designate the public health aspects of the effects of high-energy, ionizing radiations such as gamma rays, x-rays, and beta rays. This subject involves an understanding of the nature of ionizing radiations, their interactions with living tissue, and the prevention of injury to people and populations from irradiation, through application of public health methods.

Many people have wondered at the expression, by public health officials, of concern over exposure of technicians, radiation workers, and even the general public to relatively low intensities of scattered, ionizing radiation, when very large doses of x-rays or radium emanations are used to produce beneficial effects in the treatment of malignancies and other diseases. The answer to this apparent inconsistency is to be found in the fact that in radiative treatment of malignancies, our object is to destroy the diseased cells in question. Normal tissues must be guarded with all possible care against emanations above the limit where damage may occur.

In our environment there is an all-pervading bombardment by cosmic rays from outer space plus a steady, low-level emanation of ionizing radiations from naturally occurring radioactive materials scattered throughout the soil, air, and water comprising our world. The total radiation field arising from these sources is known as "the natural radiation background." In addition, in the very tissues of our bodies, trace amounts of the naturally occurring radioisotopes are found, so that penetrating rays emitted from these sources add another increment to the natural background exposure. Each of us is, and all of our forebears were, bathed in this radiation field, at every moment of our and their existence. However, if one's body be repeatedly irradiated at levels much exceeding that of the recommended maximum permissible dose, deleterious cell and tissue changes may be observed.

"Radiological health" involves application of intelligent care in dealing with high energy radiation; not avoidance or elimination of all radiation exposure. In other fields of public health the goal is rarely to prevent entirely any and all contact between susceptible individuals and injurious agents or organisms. Control of the non-degenerative ills is accomplished by keeping the possible concentration of the offending agent below the level which could overcome the body defenses or outstrip its reparative abilities. So, in radiological health the aim is to avoid avoidable radiation and, in any event, not to exceed the recommended maximum permissible dose of 0.3 roentgen per week for repeated or sustained exposure. If this level is not exceeded, it is believed that an individual within a normal lifetime will show no overt injury.

In the early years of the current century, potential sources of radiation exposure were few in number and a relatively few people, mostly specialists in radiation, ran risk of incurring radiation damage. Radiological health at this stage did not need to be much more than a series of personal protection measures. As the first half of the 20th century matured, medical, research, and industrial applications of x-rays, radium emanations, and other types of high energy radiations expanded rapidly. Increasing numbers of technicians, radiation workers, radiologists, and even the general public were potentially exposed. Therefore, health activities of the general nature of industrial hygiene procedures for personnel protection from radiation were developed for protection of persons who worked habitually in the vicinity of ionizing radiation sources.

The advent of the atomic age within the current decade, with its radioisotopes, atom bombs, and promise of atomic power has called popular attention to the potential health hazards of radiation. Now, with widespread use of x-ray diagnosis in medicine and industry with increasing employment of radiation therapy in medicine, and with the mushroom-like increase in shipments of artificially radioactive isotopes, the populace has become potentially exposed to radiation levels in excess of those which characterize our natural background. Because man has deliberately increased the available amount of high energy radiation in the world, public health authorities have had thrust upon them the moral responsibility of helping the community to live with radiation without compromising its health.

The Atomic Energy Commission—face to face with the problem in its potentially most serious form—has led the way in developing standards for radiological protection. Its record in this field has been a notable one. Since January, 1947, only five accidents have occurred in its large staff as a result of radiation, all five, burns in handling beta-contaminated materials without following regulations. At Hanford, Calif., and Oak Ridge, Tenn., the average radiation to which the workers as a group are exposed is less than that received by residents of Rocky Mountain cities in the form of cosmic rays. Injuries of all kinds in all A.E.C. plants have averaged less than half the rate for American industry as a whole. The public health engineer will find invaluable hints in the recent report of the Commission[1] outlining in detail the preventive practices which have been introduced in the A.E.C. plants.

Radiological health, from being merely a personal health protection responsibility, has reached the stature of a general public health activity. It behooves all public health workers, governmental and non-governmental, to familiarize themselves with the nature, biological effects and measures for control of ionizing radiation. Local and state health departments as well as the Public Health Service should develop methodologies and practices designed to prevent an adverse effect on the health of the nation by nuclear and machine-produced radiations, as we move forward into this new technological era.

1. *Control of Radiation Hazards in the Atomic Energy Program.* U. S. Atomic Energy Commission. Government Printing Office, July, 1950.

COLIFORM ORGANISMS AND GAS PRODUCTION

SINCE Theobald Smith introduced the gas fermentation test for colon bacilli more than half-a-century ago, tens of thousands of bacteriologists have applied

it to uncounted millions of water samples. It is strange that a fundamental analysis of the processes going on in such tests has not before been made.

Chambers [1] has presented highly significant data with regard to this neglected problem. He finds that the total bacterial population in a fermentation tube inoculated with varying numbers of colon bacilli generally reaches a more or less stable maximum in three hours; and that gas is produced (in at least a 2 mm. bubble) when the population of colon bacilli reaches a mean value of 170 million per ml. in lactose broth. In brilliant green bile broth nearly a 50 per cent greater population is required to produce visible gas.

Chambers concludes that production of gas in any amount in the fermentation tube is highly significant; and points out that colon bacilli actually present may not be revealed if—in the presence of other organisms—the maximum total population level is reached before 170 million colon bacilli per ml. are present.

These results are not likely to affect the use of the coliform test in control of public water supplies. Present standards are not based on the discovery of the ultimate colon bacillus; but on an overwhelming mass of practical experience which shows that the fermentation test, as ordinarily made and interpreted is a reliable measure of safety. They are, however, of fundamental theoretical importance; and may have very practical application in the study of stream pollution problems, where competing non-gas-forming organisms may be present in large numbers.

1. Chambers, C. W. *Pub. Health Rep.* 65:619 (May 12), 1950.

LETTER TO THE EDITOR

To the Editor,

In regard to your timely editorial on "Nitrates in Well Water and Methemoglobinemia in Infants" (July, 1950, page 866), it seems to me you have overlooked an opportunity to stress the importance and feasibility of prevention of this serious disease. When a disease occurring in the newborn period has an incidence of one per thousand live births and when it is evident that it is a disease which could be prevented by relatively simple means, it seems to me that, while further research should certainly be encouraged, it is more important to urge the adoption of the following measures at least in affected areas:

1. Well water methemoglobinemia should be made a reportable disease.

2. The testing of the private well water supply for nitrate content should become an integral part of the prenatal examination in rural areas. Well water containing more than twenty parts of nitrate per million should be condemned for use in infant feeding.

3. The importance of breast feeding at least in the first two or three months should be stressed, since there has been no report of a proven case in a breast fed baby.

If these measures were publicized and adopted by state and provincial public health bodies, well water methemoglobinemia would become a rarity in a much shorter time and with far smaller expenditure of public funds than would be involved in large-scale reconstruction of hundreds and thousands of wells.

H. Medovy, M.D.
Winnipeg, Canada

September 1, 1950

Clearing House on Public Health Salary Information and Personnel Needs

TURNOVER COSTS

A recent note on costs of employee turnover is found in the Civil Service Association *Newsletter* of July, 1950. The United States Navy found that in one year average direct cost of turnover amounted to nearly $500 per employee replaced. Nor does this include the cost of training the replacement. It includes only labor time requirements of all the processes involved in the separation and replacement of the employee. The replacing of 1,632 stenographers and typists cost the Navy in one year $800,000. This is an item to be remembered in deciding whether an agency can afford to meet competition for employees by matching salaries offered elsewhere. What profits it to lose an experienced worker only to pay in replacement and training costs the raise that might have kept him?

MERIT REWARDED—AS IT SHOULD BE

Recently Maude Myers was elected to the presidency of the Illinois Civil Service Commission after being appointed to the Commission by Governor Adlai E. Stevenson. What makes this a particularly newsworthy item is that Miss Myers had previously been on the Commission's staff for 23 years. Starting as a certified stenographer in 1927, she worked up successively through payroll clerk, payroll supervisor, chief of the administrative division, and finally executive officer of the Commission. She held this post for two years before being appointed a member of the policy making body.

CALIFORNIA RECRUITMENT PAMPHLET

California, reports indicate, suffers less than a number of other states from current public health personnel shortages. The reasons are probably varied, among them, the relatively high level of salaries. Nor should one forget the sunshine factor. But it may also be related to recruitment efforts. All this is by way of introducing "Thinking about Your Future? What about a Career in Public Health?" This is intended apparently for high school and college students and outlines in non-technical language what each member of the health department team does, what kind of a person one needs to be, what his training, and what his opportunities are in job satisfactions and in salary. "The sanitarian," for example, "is the eyes and ears of the health officer" and it is for him to whom outdoor work has an appeal. "Do you like people? . . . Do you like to write?" are questions for the health educator and "Do you like mathematics?" for the public health analyst.

A BID TOWARD ULTIMATE RECRUITING

The Communicable Disease Center of the Public Health Service during the recent World War developed a training program for sanitarians to meet a critical shortage of such workers. Currently and for the past several summers, it has been conducting what its scientist director, Justin M. Andrews, calls "our bid toward ultimate recruiting of professional personnel for public health activities."

The Center accepts each summer outstanding medical students who want to take important public health assignments. In the summer just past, 32 students from 11 medical schools and two universities were employed on

projects in 8 cities, including work on poliomyelitis, health hazards in chemistry, study of diarrhea and dysentery mortality, and typhus investigations, among others.

WHAT OUR WORLD OFFERS DIETITIANS

Two studies of interest to dietitians have recently been made in the U. S. Department of Labor. The Bureau of Labor Statistics conducted a survey of salary and working conditions in May, 1949. The findings, based chiefly on hospital dietitians, are reported in the *Monthly Labor Review* of February, 1950.

The Women's Bureau of the department has published "The Outlook for Women in Dietetics," in its Home Economics Occupations Series (*Bull. No. 234–1*). It indicates that, in spite of about 1,000 public health nutritionists employed in 1949, "The shortage of highly qualified persons to fill vacancies in federal and state government positions was serious enough to delay the inauguration or expansion of nutrition programs where funds for financing them were available." It includes a 20 page chapter on Public Health Nutritionists. U. S. Gov. Ptg. Office, Washington, D. C. 25¢.

THE SPOILS SYSTEM

Good Government, which is the bimonthly bulletin of the National Civil Service League, uses Claribel Pate's factual account of how employees are selected by a state agency not under civil service restrictions. The publisher hopes it will be read particularly by those "who still believe in the superior efficiency and democracy of the spoils system" over "the red tape, delay, and impracticability of Civil Service examinations." For him who believes all public employees are chair warmers, the same issue has a message on "Improving the Efficiency of Public Employees" by James Mitchell, a U. S. Civil Service Commissioner. He maintains that government bureaus, no less than private industry, range from the highly efficient to those that have a great need for improvement. *Good Government*, 67:1, Jan.–Feb. 1950, 120 E. 29th St., New York 4.

LOUISIANA CONTINUES SALARY STUDIES

The Merit System of Louisiana, where the health department is one of the few divisions of the state government operating under a merit system, has just completed a third annual survey of health department salaries for the state in relation to other states in the Union. Forty states replied to its questionnaire which asked for salaries in 70 classes of positions. The study reports that in nearly four-fifths of the classes Louisiana maximums were higher than the average. It also found that in the past year nearly one-third of the states had general overall revisions in pay ranges, and more than one-sixth had no changes, and in one-half of the states there were changes for a few positions only. The report is available from the Louisiana Merit System, Capitol Annex, Baton Rouge.

Now that the Public Health Service has issued three and promised at least two additional studies each of state and local health department salaries, Merit Systems or health departments contemplating studies of state public health salaries might well consider whether the results have sufficient additional usefulness to justify the expense and to warrant putting their sister states to the trouble of filling out one more questionnaire.

PREPARATION FOR HEALTH EDUCATION

About a year ago the U. S. Office of Education sponsored a Conference on the Undergraduate Professional Preparation of Students Majoring in Health Education. The report of this Conference is now available. This was an ex-

ploratory Conference for exchange of news without making basic policy recommendations. A second Conference within two years was agreed upon as well as a Continuation Committee.

Perhaps the most valuable part of the report is the Appendix in which are listed 34 institutions offering an undergraduate major in health education and their health education curricula analyzed. The report was prepared by H. F. Kilander, assistant specialist for health education in the Office of Education, who was also director of the Conference. The Office of Education, Federal Security Agency, Washington 25, D. C.

STUDY OF NURSE SALARIES

The *American Journal of Nursing* for June, 1950, publishes a summary of a survey of nurse salaries as of September, 1949. The study is based on a random cross-section of 14,000 active registered nurses in the country representing about 5 per cent of the total of such nurses. Replies were received from slightly less than half of those queried. Public health nurses represented about 12 per cent of those replying, whereas they represent slightly less than 10 per cent of the nursing profession. Industrial nurses represented about 5 per cent of the reporting group. Highest average salaries were reported for public health and industrial nurses except for a small group of nurse educators. Details of the study are available from the American Nurses' Association, 1790 Broadway, New York 19.

MONTANA TAKES THE LEAD

The State Board of Health of Montana has recently adopted a 15 per cent supplemental pay to the base salary as set forth in the salary plan, for all medical and dental personnel certified in a specialty related to the job for which they are employed.

RECRUITMENT IN A LIGHTER VEIN

In the belief that public health needn't be solemn, the Louisiana State Health Department has prepared a leaflet for recruiting public health physicians. It is called "What's Your Prognosis?" With humorous illustrations it answers a number of questions about the career of a public health officer—income, vacation, retirement, job satisfactions, etc. "If You Are Interested We Want You" is its punch line. Louisiana State Health Department, New Orleans.

The Control of Communicable Diseases in Braille

The Library for the Blind of the New York Public Library has asked for and has received permission to put the new seventh edition of *The Control of Communicable Diseases in Man* published by the American Public Health Association into Braille. The volume will also be recorded for the use of blind readers.

Credit Lines

PUBLIC HEALTH IS EASY TO LOOK AT

The *Evaluation Schedule* of the American Public Health Association has come out of the ivory tower into the workaday world. The transport responsible for this journey is as modern as jet propulsion. Appropriately called "What's the Score?" it translates the *Schedule* into English, as plaintively requested at a recent community organization conference. The translation is in short, incisive sentences. You are dared to find even one sentence of 50 words. It is interestingly illustrated in a good homespun red, printed in large type on good paper. The red and yellow cover has an unusually inviting look. Its purpose is to improve local health services through involvement and understanding of large numbers of citizens, including the plain Janes and Joes.

The builders of this job are Ray Torr and Roscoe P. Kandle, M.D., field director of the American Public Health Association.

More good news. "What's The Score?" is free for the asking. Committee on Administrative Practice, A.P.H.A., 1790 Broadway, New York 19.

A FIRST STUDY OF BLOOD BANKS

The Bureau of Medical Economic Research of the American Medical Association has supplied detailed data in A Report to the Committee on Blood Banks, entitled "Survey of Blood Banks in the United States and Possessions." A total of 1,648 blood banks and centers in 962 cities are identified in this study, reported to be the first of its kind. It is estimated that 3,500,000 units of blood are used annually. Data regarding administration, staff, costs, and equipment are tabulated and problems requiring further study suggested. The American Medical Association, 535 N. Dearborn St., Chicago 10.

COMMUNICABLE DISEASE MANAGEMENT

The current trend is toward the care of communicable disease patients in general hospitals. But "scientific data in this field are scanty." Hence the New York State Health Department through its Bureau of Epidemiology and Communicable Disease Control has prepared a *Guide for the Handling of Communicable Diseases in General Hospitals*. "The recommendations," says its foreword, "represent the composite current opinion of experienced workers in communicable disease control." It is an excellent production containing general principles as well as detailed recommendation on physical arrangements and nursing and other technics. New York State Department of Health, Albany.

LAY SURVEYS ARE IN FASHION

Ohio is developing a pattern of local health surveys in which large numbers of citizens themselves take part in the survey process. Thus they learn about community health in terms of their neighbors and their surroundings. The latest, in which the Agricultural Extension Service had a guiding hand, is of Clinton County, a rural county with a population of about 21,000. Nearly 500 enumerators surveyed about 5,500 families comprising more than 80 per cent of the population. In the process both surveyor and surveyed found out such facts as that "too many of our babies are miscarried and born dead," "many rural and urban families do not drink pasteurized milk," and many others. In the course of planning the survey a county health council was formed. The

survey report can be secured from Robert Grimshaw, County Extension Agent, Court House, Wilmington, Ohio.

CHECKING ON RESULTS

Another good example of evaluation of health education media is to be found in the report *Frequency and Effectiveness of Sources of Information Used in the 1949 Hamtramck Michigan Chest X-Ray Survey.* It was a project of the University of Michigan Institute of Social Work and the Detroit Tuberculosis and Health Society. The largest number of people in the campaign were reached by newspapers, leaflets, churches, volunteers' visits, and schools in that order. There are also interesting findings on the extent to which the campaign educated the public in the need for an annual chest x-ray. Health Education Studies No. 1, Tuberculosis and Health Society, 153 E. Elizabeth St., Detroit 1.

A WORKING DEFINITION

The August monthly *Bulletin* of the Shelby-Effingham (Ill.) Bicounty Department of Health says—"What is a Health Department? A Health Department is a part of the county government. It is a team of people, a group of health specialists, working for the common purpose of protecting county citizens against preventable diseases. Successful work in preventive hygiene is never spectacular because the best work results in nothing (no disease or epidemic) happening. It takes time for a community to understand all the functions of a health department."

Or to put it another way, supporting a health department is paying for the troubles you don't have rather than for those you do.

OKLAHOMA PROTECTS 2 MORE COUNTIES

Oklahoma has two more counties under the protection of organized full-time local health departments. This has been done in each instance by combining with already organized counties. In July, after a long campaign by the Women's Federated Missionary Society, Tillman County with its neighbor, Kiowa, joined to form a bi-county department serving about 40,000 persons. A little later Okmulgee County did the big brother act with Okfuskee County under the former's health officer, Dr. M. L. Peter, thus serving a population of some 80,000. The two latter counties are committed to working together for at least a year on an experimental basis.

ANOTHER CONSOLIDATION IN OHIO

The public health law of Ohio authorizes 203 health jurisdictions made up of the 88 counties and 115 cities and towns with populations of 5,000 or more. For many years, however, reduction in the number of these jurisdictions has been going on through consolidation of county and municipal administration of local health services or through multi-county administration. Currently there are 153 jurisdictions, the latest consolidation being a two county unit made up of two previous city-county consolidations. Medina County and its chief city of Wadsworth and Wayne County and Wooster have joined forces in a health department that serves more than 85,000 persons. Its headquarters are in a new 12 room health center in the Wooster Community Hospital.

The present state health administration in Ohio has set itself the goal of reducing to 37 the 203 jurisdictions authorized in the law. This latest consolidation means that the state is about one-third along the way to this goal.

THE WAGES OF SPEED—IN A NUTSHELL

Raising the average speed of your driving from 34 to 53 miles an hour raises operating costs 50 per cent and death risk 270 per cent. In a half page graph, mostly in black figures, this is the contribution of the August North Caro-

lina *Health Bulletin* to driving safety education. It is entitled "Mathematics Proves Folly of Fast Driving." The operating costs and death risks increase steeply as average speeds increase.

WORTH ACQUIRING

Accident Handbook: A Home Accident Guide has been prepared by the Children's Hospital of Boston as a "What To Do" in case of accident, particularly to children. Poisons, burns, fractures, cuts, and other accidents each are given a simple list both of things not to do and of things to do. Should be useful for distribution by health departments or schools. The Children's Medical Center, 300 Longwood Avenue, Boston 15, 25¢. Reductions for quantity orders.

"The Nurse Mental Health Consultant: Functions and Qualifications" appeared in *Public Health Nursing* of 1950 and is now available in reprints. It is the second in a series reporting a joint project of the National League of Nursing Education and the National Organization for Public Health Nursing, and is supported by a grant from the National Institute of Mental Health. The project aims to bring together information of mutual interest and help to psychiatric and mental health nursing personnel. A later report will describe functions and qualifications of psychiatric nursing personnel. Reprint free from National Organization for Public Health Nursing, 1790 Broadway, New York 19.

More Than Medical, by Margie Robinson, research assistant of the E. C. Brown Trust (220 S. W. Alder St., Portland 4, Ore.) has for its thesis that venereal disease control is a psychological and social problem as well as a medical. Just as there are accident-prone, so there are V. D.-prone persons—namely those whose social and psychological climate makes for promiscuity. This, the author says, is the fundamental cause of venereal disease. Free to Oregon residents, others 25¢.

The E. C. Brown Trust by the way, was established as a public trust fund by a Portland physician of that name to provide social hygiene education for Oregon young people and adults.

Accident Facts, in its 1950 edition, is now out and tells in pictures, maps, and figures everything that anyone might want to know as background for a plan, personal or community, for preventing accidents. In 1948 they were among the 5 chief causes of death for everyone over a year old. And in 1949 accidents cost the country 7½ billion dollars. The great open spaces have the highest rates with New Mexico, Wyoming, Montana, and Nevada each having more than 100 accidental deaths per 100,000 population. But Maine is right up there among the 11 states with more than 70. One promising note is that there were in 1949 only 7.4 deaths from motor vehicle accidents per 100,000,000 miles of travel, whereas 8.2 were expected. *Safety Round the Clock* has also just come out from the National Safety Council. With appropriate amusing illustrations, this small pamphlet is a reminder of all the little necessary safety measures, "from the time you get up . . . till you put the cat out." National Safety Council, 425 N. Michigan Ave., Chicago 11.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Aids to Public Health—*By Llywelyn Roberts (6th ed.). Baltimore: Williams & Wilkins,* 1950. 304 pp. Price, $2.00.

The 6th edition of Dr. Roberts' book is a little larger than the former editions, although it is still of "pocket size." Alterations and additions in the text have been made necessary by what has been called "social legislation" in England.

Chapter I reviews the pertinent history of public health in Britain. This is followed by a chapter on vital statistics, which are considered as the basis for planning public health activities. The next section deals with some of the common communicable diseases, and then with the use of disinfectants and other means for the control of infections. Food sanitation and nutrition are given brief consideration. Water supply and the disposal of refuse and excreta are described from the point of view of both the individual and his community.

Hospital construction and public housing are considered in one chapter, and this is followed by another on ventilation, heating and lighting. Then maternal and child welfare, the school child, and care of the worker are discussed. This is followed by a more general consideration of social care and personal health. Finally, some of the important public health administrative practices are dealt with, including a few details of organization.

This text is interesting to public health workers in the United States because it permits an easy comparison of the problems in this country with those of Britain. One not entirely familiar with public health practices abroad is perplexed by such terms as "tipping" used to describe a method of garbage disposal, and the consideration of DDT as a disinfectant. It is difficult to quibble with many of the statements set forth in a text which, since 1923, has gone through six editions and several reprintings.

WILLIAM W. STILES

The Art and Science of Nutrition—*By Estelle E. Hawley and Grace Carden (3rd ed.). St. Louis: Mosby,* 1949. 700 pp. Price, $4.75.

This third edition continues to be a well illustrated (90 figs.), and well arranged book suitable for teaching. It is amply indexed; references are given by subjects; review questions are given at the end of each chapter. The book is divided into seven parts: normal, nutrition, which includes a chapter each on digestion, blood and endocrines; food requirements under special conditions; diet therapy; the choice, preparation, and serving of foods; questions for general review; references and appendix which contains approximately 100 pages of well selected data.

The material included in the book is interestingly presented, and includes a discussion of the basic public health hazards concerned in food handling and preparation as well as a presentation of legal and certain voluntary controls of quality that are accepted by the food industry, a feature overlooked in most texts.

The present edition should prove very useful as a text in teaching nutrition to nurses and to other professional groups. Because of its complete coverage, this book would be a good addition to the libraries of local health units which have

need of a single well organized reference book on nutrition.

MARGARET C. MOORE

Current Therapy 1950. *Edited by Howard F. Conn. Philadelphia: Saunders,* 1950. 736 pp. Price, $10.00.

This manual provides up-to-the-minute, well arranged information on modern therapy. The table of contents follows the pattern of a text of medicine, making it especially easy for physicians to use.

Each disease is covered by an expert clinician who presents his own method of treatment. For several diseases more than one writer has prepared an outline, but each contribution is complete in itself and in the words of a particular authority. The contributions are succinct, yet in sufficient detail to engender confidence in the physician following the suggestions. The volume is far superior to the usual eclectic reviews because of the specificity of its recommendations.

In the health department library this book has several uses. It is an excellent reference for the clinical problems which confront the public health physician—both in direct service to patients and in consultation to other physicians. Communicable diseases, including tuberculosis and venereal disease, are well handled. The volume also would be helpful for orientation of public health nurses and other personnel. As the interests of public health workers and private physicians come closer together, the need for health department personnel to keep abreast of current medical therapy becomes more urgent.

LESTER BRESLOW

General Report of the Pharmaceutical Survey, 1946–49. *Washington, D. C.: American Council on Education,* 1950. 240 pp. Price, $6.00.

Public health workers, representing as they do more than a dozen professions, will have interest in this systematic study of the profession of pharmacy conducted under the auspices of the American Council on Education. Any one of these professions which comes up for self-examination would do well to inspect this volume reviewing, as it does, the educational system, the student quality, the pharmaceutical curriculum, matters of professional licensure, study of the supply of and demand for trained pharmacists, their income, inter-professional relations, etc.

Among the recommendations is one that the examination system for pharmacists should be converted to a modern type such as that which is making progress in the public health field. Distinction is made in the recommendations between the profession of pharmacy and the business of pharmacy, a distinction which has meaning in other related fields. Of passing interest, it is noted that the metric system appeared in 21 per cent of the prescriptions, with the outmoded apothecary system used in the remainder. REGINALD M. ATWATER

Currents in Nutrition—*By Bertha Burke, William J. Darby, L. Emmett Holt, Jr., M. K. Horwitt, Ancel Keys, Carl V. Moore, James M. Strang, and R. W. Vilter. New York: National Vitamin Foundation,* 1950. 128 pp. Price, $1.00.

This volume contains transcripts of the proceedings of the Nutrition Symposium held at the University of Illinois, College of Medicine, November 19, 1949. The subjects discussed by the panel of authorities include: thiamine and riboflavin requirements of man, B vitamin requirements of infants, pyridoxine deficiency in man, maternal nutrition, newer hematopoietic vitamins, iron metabolism and hypochromic anemia, and obesity. As the title of the book implies, each of the speakers discussed recent developments in the field of nutrition, using his own research interests and findings as the basis for his paper. Since the copy

was prepared largely from stenotype transcriptions, the text is unfortunately but understandably not supported by tables, charts, or references. However, verbatim records of the discussion following each paper are included. This, together with the informal nature of the speaker's presentation, gives the reader the impression that he was actually present at the conference. The book is well worth a dollar. PAUL L. DAY

Maternity Care in Two Counties —Gibson County, Tennessee, and Pike County, Mississippi. 1940–41, 1943–44—*By Frank E. Whitacre and Ellen Whiteman Jones. New York: Commonwealth Fund,* 1950. 165 pp. Price, $.50.

"Delivery nursing services" were established by the health departments in Gibson County, Tenn., in November, 1937, and in Pike County, Miss., in July, 1938. These services came as the result of recommendations of Commonwealth Fund financed studies of maternity care in the two counties made a few years prior to the establishment of the present maternity care program. After ten years of operation this study was made to determine whether or not the "delivery nursing service" was effective in reaching the goals set up and whether or not this type of service is appropriate for the rural county of today. A rather detailed analysis of all findings covering four years, 1940–41, 1943–44, including all aspects of maternity care provided by the health department, hospitals, and physicians is described for the two rural counties.

The following areas are included: the extent to which antepartum medical and nursing services were used; an analysis of the complications of pregnancy in relationship to medical and nursing supervision; the problems in administration of a rural delivery service, including cost analysis of the public health nursing participation; the management of labor and delivery (some of the information for this section was obtained by Dr. Whitacre by interviewing physicians, by attending home and hospital deliveries, and by reviewing case histories); an analysis of the amount of medical and nursing postpartum care for all maternity patients in the two counties; and a review of maternal and infant mortality rates in relation to the nursing and medical service obtained by all patients.

This report points out the value of medical and nursing services throughout the maternity cycle, and it points out areas where teaching was ineffective. This study should be helpful to those responsible for planning on a community-wide basis. It is an example of the value of periodic evaluation of public health practices.

RUTH J. RAATTAMA

Nutrition and Diet Therapy — *By Fairfax T. Proudfit and Corinne Hogden Robinson (10th ed.). New York: Macmillan,* 1950. 950 pp. Price, $4.00.

In bringing up to date this 10th edition of a useful handbook on nutrition and diet therapy, the authors have taken full cognizance of the many advances which have occurred in the field of nutrition since the last edition was published four years ago. The general form of the previous edition has been retained, and the material has been evaluated in accordance with the new *Manual for Teaching Dietetics to Student Nurses,* prepared by the American Dietetic Association. The book is again arranged in five sections—Normal Nutrition, Normal Nutrition in Special Conditions, Diet Therapy, Practical Applications of Nutrition—Elementary Cookery, and Recipes. The various sections have been either completely rewritten or revised by the addition of new material. The Appendix, containing suggested outlines for dietary case studies, methods for calculation of food values, food composition tables, and other tables, has been completely re-

vised. It includes new tables which present values for the shortened method of dietary analysis and which provide a convenient list of food equivalents for the calculation of measured diets. Height-weight tables for all age groups have been added also. Among the new data are tables on the sodium, potassium, and cholesterol content of foods. The authors have presented a well balanced clear and concise exposition of their subject. The book should fulfil the needs of students as well as graduates in the nursing, dietetic, medical, and public health fields.

ELSA ORENT KEILES

Textbook of Healthful Living—*By Harold S. Diehl (4th ed.). New York: McGraw-Hill,* 1950. 776 pp. Price, $4.00.

As Professor of Preventive Medicine and Public Health and Dean of the Medical Sciences at the University of Minnesota, the author has been recognized as a leading authority on health instruction in colleges. His *Textbook of Healthful Living* has likewise gained eminence, and the 4th edition promises to maintain both the author and his work in high esteem.

Former editions have stressed the intellectual approach to the health problems of the individual, as stated in the dedication of the book "To those who prefer facts to fads, sanity to superstition, understanding to belief." The same emphasis is presented in the present edition, with an additional attempt to correlate some of the individual's health problems with those of his community.

Six new chapters have been added to the section on community health; so there are now 8 out of the 30 chapters dealing more specifically with public health. These chapters are Community Health, Controlling Communicable Diseases, Animals, Insects, and Disease, Sanitation and Health, Health in School and on the Job, Government and Health, Voluntary Health Services, and Health in the Future.

There are several additional features of the book which are invaluable. One of these is a series of five educational films and film strips together with an Instructor's Manual, and these are important adjuncts to specific chapters. Selected pictures from the films have been reproduced in the text. Another worth while feature is the list of discussion questions and references and reading suggestions given at the end of each chapter. An extensive appendix includes a glossary, tables of standard weight, a nutritional chart, a personal health form, and a reprint of the entire 7th edition of *The Control of Communicable Diseases in Man,* an official report of the American Public Health Association.

It is the opinion of this reviewer that the book would mean more to the student if a major portion of the material presented in the appendix were integrated into the context. It is a bit disappointing to find no mention of the World Health Organization and little about international health problems. It would be timely to define the term "socialized medicine" in connection with the discussion of medical care.

In spite of these minor criticisms, Dr. Diehl's textbook is a valuable aid to prepare college students for better living. His extensive use of selected quotations from authoritative sources will give students a good introduction to both the classics and the scientific literature.

WILLIAM W. STILES

Principles of Public Health Administration—*By John J. Hanlon. St. Louis: Mosby,* 1950. 506 pp. Price, $6.00.

Here is a scholarly, penetrating text whose title is particularly apt. After an introduction providing the background and philosophy of public health, Part II concerns the Administrative Considera-

tions in Public Health. Here are thoughtful chapters on such subjects as organization, personnel factors, fiscal management, and legal considerations which occupy more than half the book. Part III presents the Patterns of Public Health Activities in the United States by 12 chapters which consider the administrative aspects of the usual activities such as vital statistics, maternal and child health, etc.

The text has a broad approach in presenting public health as a part of the social and governmental structure, but is restricted to the principles of administration in contrast to the technical or clinical aspects. The emphasis is rather on "why" than "how" although the author's deep concern is in terms of public health services to people. The volume is well documented from a wide variety of sources, including political science and sociology as well as the public health literature. It must surely be added to the health officer's bookshelf and will be widely used by serious students of public health. R. P. KANDLE

The Merck Manual of Diagnosis and Therapy *(8th ed.). Rahway, N. J.: Merck & Co.*, 1950. 1,592 pp. Regular ed., $4.50. Thumb-Index ed., $5.00.

The Eighth Edition of this widely read volume is published after an interval of ten years. A period of fifty years has been covered by the several editions. More than 100 clinicians have served as authors or consultants for the material which is presented in these closely packed pages, representing an amazing condensation including such up-to-date subjects as radiation reactions and injuries, antibiotic therapy, crystalline vitamin B_{12}, cortisone and ACTH.

Many a health officer will welcome this quick reference in compact form as a desk companion.

REGINALD M. ATWATER

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ATLAS OF HUMAN ANATOMY. Barry J. Anson. Philadelphia: Saunders, 1950. 518 pp. Price, $11.50.

BASIS OF A DEVELOPMENT PROGRAM FOR COLOMBIA. Report of a Mission headed by Lauchlin Currie. Washington: International Bank for Reconstruction and Development, 1950. 76 pp. Price, $.50.

BIOLOGY OF HUMAN STARVATION. Ancel Keys, Josef Brozek, Austin Henschel, Olaf Mickelsen, and Henry Longstreet Taylor. Minneapolis: University of Minnesota Press, 1950. 1385 pp. 150 illus. 2 vols., $24.00.

CAMPING. Arthur H. DesGrey. New York: Ronald Press, 1950. 165 pp. Price, $3.00.

CHILD CARE IN ISRAEL. Edited by C. Frankenstein. Jerusalem: Henrietta Szold Foundation for Child and Youth Welfare, 1950. 324 pp.

GENETICS—THE SCIENCE OF HEREDITY. John Pfeiffer. New York: Public Affairs Committee, 1950. 32 pp. Price, $.20.

GROUP LIFE: THE NATURE AND TREATMENT OF ITS SPECIFIC CONFLICTS. Marshall C. Greco. New York: Philosophical Library, 1950. 357 pp. Price, $4.75.

HEALTHY BABIES ARE HAPPY BABIES. Child Care. Josephine Kenyon and Ruth K. Russell. New York: The American Library, 1950. 240 pp. Price, $.25.

HISTORY AND TRENDS OF PROFESSIONAL NURSING. Deborah MacLurg Jensen. (2nd ed.). St. Louis: Mosby, 1950. 365 pp. Price, $3.25.

HOW TO ORGANIZE YOUR GUIDANCE PROGRAM. Edgar L. Harden. Chicago: Science Research Associates, 1950. 70 pp.

HUMAN STERILIZATION. R. L. Dickinson and C. J. Gamble. New York: Planned Parent-

hood Federation of America, 1950. 40 pp.

INQUIRY INTO THE INTIMATE LIVES OF WOMEN. Marc Lanval. New York: Cadillac Publishing, 1950. 243 pp. Price, $3.00.

LANGUAGE FOR THE PRESCHOOL DEAF CHILD. Grace Harris Lassman. New York: Grune & Stratton, 1950. 259 pp. Price, $5.50.

MECHANISM AND EVALUATION OF ANTISEPTICS. Herbert L. Davis, et al. New York: New York Academy of Sciences, 1950. 240 pp. Price, $3.00.

MEDICAL MYCOLOGY. ANNALS, VOL. 50, ARTICLE 10. Frederick Reiss, et al. New York: New York Academy of Sciences, 1950. 192 pp. Price, $2.75.

MIRACLE OF GROWTH. Urbana, Ill.: University of Illinois Press, 1950. 73 pp. Price, Cloth $2.00, Paper $1.25.

THE OTHER SIDE OF THE BOTTLE. Dwight Anderson. New York: A. A. Wyn, 1950. 250 pp. Price, $3.00.

PHYSICIAN EXAMINES THE BIBLE. C. Raimer Smith. New York: Philosophical Library, 1950. 394 pp. Price, $4.25.

PROSTATE GLAND. Herbert R. Kenyon. New York: Random House, 1950. 194 pp. Price, $2.95.

SANTA CLAUS, M.D. W. W. Bauer. Indianapolis, Ind.: Bobbs-Merrill, 1950. 266 pp. Price, $2.75.

SEROLOGY WITH LIPID ANTIGEN. Reuben L. Kahn. Baltimore: Williams & Wilkins, 1950. 327 pp. Price, $6.00.

SYMPOSIUM ON RADIATION GENETICS. Sponsored by The Biology Division. Oak Ridge, Tenn.: Oak Ridge National Laboratory, 1950. 210 pp.

TERRAMYCIN. ANNALS, VOL. 53, ARTICLE 2. C. S. Keefer, et al. New York: New York Academy of Sciences, 1950. 240 pp. Price, $3.00.

TUBERCULOSIS HANDBOOK FOR PUBLIC HEALTH NURSES. Jean South. New York: National Tuberculosis Assn., 1950. 88 pp. Price, $.50.

THREE TO SIX: YOUR CHILD STARTS TO SCHOOL. James L. Hymes, Jr. New York: Public Affairs Pamphlet, 1950. 32 pp. Price, $.20.

YOUR PREGNANCY. Anna Roosevelt and Leo M. Doyle. New York: Henry Holt, 1950. 178 pp. Price, $2.50.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Mournful Numbers Department—Britain's top researchers find that antihistaminics have no value in preventing experimentally induced colds, and little, if any, value in treating naturally contracted colds. So endeth another lesson!

ANON. Clinical Trials of Antihistaminic Drugs in the Prevention and Treatment of the Common Cold. *Brit. M. J.* 4676:425 (Aug. 19), 1950.

Message of Utmost Importance—"You, as adults, not only can and ought to learn something of atomic energy beyond what appears in the daily press but that you will find the necessary information within easy reach." This outstanding paper tells you where to begin to get it.

BEERS, N. R. Living With the Atom. *J.A.W.W.A.* 42, 8:729 (Aug.), 1950.

Sad Summary for Snifflers—The story remains the same as 1950 draws to a close. The common cold is a virus infection which continues still to be uninfluenced by antibiotics (or antihistaminics or anything else) and for which there is still no reliable method of prevention.

BLOOMFIELD, A. L. Some Problems of the Common Cold. *J.A.M.A.* 144, 4:287 (Sept. 23), 1950.

This Idea Should Be Catching—During well baby conferences this observer noted pediatricians' attitudes toward mothers. From them she was able to suggest ways of improving the educative content of the interviews. Isn't it likely that other specialists in the health field could profit by similar analyses of their interviewing methods?

BLUM, L. H. The Pediatrician in the Role of Psychologist and Educator. *Am. J. Dis. Child.* 80, 2:238 (Aug.), 1950.

Chronics Took Longest To Clear—If for no other reason, you will want to see the beautiful color plates of clinical evidences of vitamin deficiencies and their progress in clearing up under specific nutrient therapy.

BROWE, J. H., AND PIERCE, H. B. A Study of Nutritional Status among School Children and Their Response to Nutrient Therapy. *Milbank Mem. Fund Quart.* 28, 3:223 (July), 1950.

Letting the Victims Tell What's Wanted—Interviews with 90 patients attending a venereal disease clinic produced no evidence that health education had had any influence upon their sexual behavior though it did seem to bring the patients in earlier for treatment. Educational materials need to be more accurately aimed is one conclusion.

BUCK, C. W., AND HOBBS, G. E. The Patient's Attitude Toward Venereal Disease Education. *J. Ven. Dis. Inform.* 31, 8:204 (Aug.), 1950.

Incidentally, It's Not for Sale—Do you know all you want to know about antabuse in the treatment of alcoholism? If not, you'll find this paper rewarding and informing. It seems that the effect is 50-50 physiological and psychological.

DALE, P. W., AND EBAUGH, F. G. Antabuse Therapy in Chronic Alcoholism. *Am. J. M. Sc.* 200, 1:103 (July), 1950.

In America Taboos Are Removed, He Says—It is always interesting to read what a foreign observer tells the home folks after a visit to our country. Though he doesn't think too highly of some of the scare-head educational efforts of our cancer controllers, this analyst is sufficiently impressed with our results to urge his British colleagues to get busy with more discreet cancer education of their own. (A small pilot study is already under way.)

DONALDSON, M. Education of the Public Concerning Cancer. *Med. Officer* 84, 11:119 (Sept. 9), 1950.

Recommended Reading—This is labeled therapy but you ought to read it as part of your professional education. Of the 50-odd virus diseases only 4 are surely amenable to chemotherapeutic agents, the distinguished writer says. And these are the huge viruses that are close to the rickettsia. Most of the paper is a discussion of the theories about what goes on in the body during and after a viral infection. Here, the going is not easy.

HORSFALL, F. L., JR. Chemotherapy in Viral Infections. *Am. J. M. Sc.* 220, 1:91 (July), 1950.

The Least a Community Can Do—For a one-room school or a well staffed city school system there are essential services that must, and can, be provided. This paper covers the wide subject with commendable clarity.

MAXWELL, C. H. An Optimum School Health Program. *J. School Health.* 20, 7:183 (Sept.), 1950.

Not New but Worth Repeating—Nine papers reporting upon a variety of "going" plans for providing medical, surgical, and hospital care for industrial groups. Even though you've read most of this before, collecting papers and outlooks in one place helps a lot.

MCGOLDRICK, T. A., *et al.* Symposium on Prepayment Health Plans for Industrial Workers. *Arch. Indust. Hyg. & Occup. Med.* 2, 3: 245 (Sept.), 1950.

We the People—Four people discuss lay participation in public health nursing services. If you mentally delete the word "nursing" from the symposium's title you'll find the discussion applies equally well to other official and voluntary agency activities.

NYSWANDER, D. B., *et al.* Citizen Participation in Public Health Nursing. *Pub. Health Nurs.* 42, 9:484 (Sept.), 1950.

Not a Private Fight—From all the "big, booming, buzzing confusion" anent what ails the public's health, the N. F. I. P.'s president picks out government support of professional education as a likely item for us by-standers to do something about. He wants us to let both the government people and the medical profession know that it is our problem, too.

O'CONNOR, B. The Health Problem of America. *Physiotherapy Rev.* 30, 8:315 (Aug.), 1950.

Last Word on Viruses—The subject of Horsfall's paper (which you were urged to read) is here expanded into a magnificent symposium which seems, through my limited vision, to cover everything known in this tantalizing field of research. (This, too, you are urged to read.)

SMADEL, J. E., *et al.* Symposium on Viral and Rickettsial Diseases. *Bact. Rev.* 14, 3: 195 (Sept.), 1950.

Importation—Different people often do things differently. The British have worked out some interesting deviations from the way we take sanitary samples of restaurant eating utensils. Whether they are improvements on our methods, I wouldn't know, but American sanitarians should make it their business to find out.

WALTERS, A. H., AND FOWLER, Z. M-D Test for Catering Utensil Hygiene. *The* (Br.) *Sanitarian* 58, 10:413 (July), 1950.

British Gains and Mistakes — This American physician-observer of the British National Service in action, says we can learn something from English experience. She thinks we had better get a completely covering hospital insurance plan in working order first, then look to next steps.

WHIPPLE, D. V. Health Care—England and the U. S. A. *Survey* 86, 9:403 (Sept.), 1950.

Water Fluoridation in Practice—Two Wisconsin waterworks superintendents report no operating difficulties or problems, no more hazard to the personnel than that raised by chlorine, and no complaints from the users.

ZUFELT, J. C., AND SMITH, L. A. Experience with Fluoridation of Drinking Water. *J.A.W.W.A.* 42, 9:839 (Sept.), 1950.

Motion Picture Film Reviews

HOMER N. CALVER, *Film Review Editor*

What's Your Safety I.Q.? Accident prevention in the home, in traffic, and in recreational sports. Black and white. Sound. About 15 minutes. Produced for the National Safety Council, 425 North Michigan Avenue, Chicago, Ill. For purchase by members: $45; by non-members: $90. For rent to members: $3 per day and $5 for a week; for non-members, rental prices are double.

This is a good educational film on accident prevention in the home. While it is ostensibly addressed to workmen in industry, it should have strong appeal also to all adults, including high school and college students, for it challenges one to participate instead of simply accepting. We all like to test ourselves, but without exposing our ignorance to the crowd—and this film enables us to do so.

The situations portrayed are familiar and the preventive measures are self-evident. The stages of learning are easy and progressive and the horror element is reduced to a minimum.

Where the film falls short is in visual interpretation. Without the narrator it would not tell the intended story or teach the desired lesson. The film is a good lecture, but it lacks action.

Action is the unique quality of the movie which sets it apart from other media. Action is a means of expression and when action is not needed to tell a story there is no reason for using the cinema, for still pictures are far more pleasing when they are actually still than when they flicker and shimmer constantly on the screen. It is true, perhaps, that the use of a strip-film technic in a movie may be justified because strip-film projectors are not always to be had, whereas the motion picture projector is more common.

Even as a strip-film, however, this particular movie falls short of quality standards. In some instances, the very thing one should see sharply is blurred or indefinite. The producer may answer that that is true also of actual situations. But in teaching there should be no question—no obscurity of the point taught. In other cases there is more than one "hazard" shown in a single "loop"—a kind of ambiguity that leaves the student puzzled, or with a feeling that he has been tricked.

In summary, this is an excellent and clever teaching device but hardly to be classified as a motion picture.

H. E. KLEINSCHMIDT

The Eternal Fight—Disease control on a world-wide basis. Black and white. Sound. 20 minutes. Available in 16 mm. and 35 mm. Produced in France for the World Health Organization of the United Nations by Madeleine Carroll Productions. For arrangements, consult United Nations Film Center, 1600 Broadway, New York 19, N. Y.

If one were searching for a dramatic theme for an educational health film, the subject of The Eternal Fight—international control of disease—would certainly have much to recommend it. As a propaganda medium for the World Health Organization activities the film makes a strong appeal. Viewed as an audio-visual aid in health education, however, it falls short of its mark.

A major criticism is that far too much has been crowded into the short space of an 18 or 20 minute showing. If the producers had limited themselves to an account of just one of the topics covered —for example, the recent cholera outbreak in Egypt—and had not tried to consider a large segment of the history

of communicable disease control—the film would have greater merit. Also, this reviewer believes that the language of the accompanying sound track could have been simplified to reach the comprehension of a larger audience. The animated scenes have been over-done, and detract rather than add to the story. The film is definitely a useful one but when as important an agency as the World Health Organization enters this area of health education, it should be able to do a better job.

THOMAS D. DUBLIN

She Also Serves—Recruitment to and interpretation of public health nursing. Black and white. Sound. 22 minutes. 16 mm. Produced and distributed by National Motion Pictures Company, Mooresville, Ind. Purchase: $70; Loan: $2.50 per day plus transportation.

The purpose of this film is to spur interest in the work of public health nurses and to attract recruits for training. It should prove fairly helpful in recruiting for public health nursing among students and graduate nurses, but in this reviewer's estimation the film will have limited interest for the general public. This is unfortunate, as much of the production is informative.

The picture is too long and it attempts too much. In addition to presenting in considerable detail a public health nurse in action, the story starts with her basic nursing education. The early scenes are not particularly related to the story of public health nursing and detract from the interest in the main topic.

The picture would be especially good for board and committee members' education. It presents the nurse functioning in generalized public health nursing service and shows her coöperation with many other types of community workers. It illustrates the team approach, the hospital-home referral system, and group work.

Unfortunately, the print seen for reviewing purposes was imperfect. Either some of the photography was quite inexpert or the original filming was in color and the sharpness seems to have been washed out when the black and white print was made.

HEDWIG COHEN

RECENT MOTION PICTURE RELEASES

(All 16 mm, black and white, with sound, unless indicated otherwise.)

Bicycle Safety. Road rules for riders, especially elementary and junior high school students. About 10 minutes. Produced by Young America Films, 18 East 41st Street, New York 17. For purchase at $40. For rental from film libraries.

Date With Your Family (A). Family harmony, manners, consideration. 15 minutes. Produced by Simmel-Meservey Inc., 321 South Beverly Drive, Beverly Hills, Calif. For purchase from producer.

Feeding Is a Social Affair. How to sterilize feeding bottles, nipples, and baby formulas in the home. 15 minutes. Color. Silent. Produced by Baby Development Clinic, 1027 Merchandise Mart, Chicago 54, Ill. For purchase from the producer.

First as a Child. Shows variety of services rendered to crippled children by the State of Virginia. 22 minutes. Produced for the Virginia State Health Department. For purchase from the producer.

ASSOCIATION NEWS

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Wilbur M. Bowman, M.D., Health Dept., 14 N. Market St., Petersburg, Va., City Health Officer

Hugh M. Brown, M.B., Box 760, Prince George, B. C., Canada, Director, Cariboo Health Unit

Capt. Charles W. Kraul, M.C., Army Industrial Hygiene Laboratory, Army Chemical Center, Md., Medical Officer

Lawrence M. Tierney, M.D., 246 Elm Street, West Haven, Conn., Town Health Officer

Raymond E. Wehr, M.D., M.P.H., Room 230, City Hall, Cincinnati 2, Ohio, Asst. Health Commissioner and Registrar of Vital Statistics, City Dept. of Health.

Laboratory Section

Roland E. Berry, 91 Gainsboro St., Boston 15, Mass., Medical Student, Tufts College Medical School

Paul D. Ellner, 1051 West 30th St., Los Angeles, Calif., Graduate Student, Univ. of Southern California

Teodor Koivastik, City Health Dept. Laboratory, Fargo, N. D., Laboratory Technician and Bacteriologist-in-charge

Leroy L. Shoemaker, 310-312 National Bank of America, Salina, Kans., Owner and Director, Shoemaker Laboratories

Carl B. Umanzio, Ph.D., Kirksville College of Osteopathy & Surgery, Kirksville, Mo., Professor of Bacteriology and Public Health

Gordon Worley, Jr., M.D., Ph.D., State Laboratory of Hygiene, Madison, Wis., Assoc. Professor of Clinical Pathology

Statistics Section

Mary Elveback, M. A., University of California, Dept. of Public Health, Los Angeles 24, Calif., Lecturer in Biostatistics

Arthur S. Grossman, 3307 Commonwealth Ave., Alexandria, Va., Analytical Statistician, U. S. Air Force

Abraham B. Siegelaub, Dept. of Mental Hygiene, State Health Dept., State Office Bldg., Albany, N. Y., Senior Biostatistician

Marjorie L. Sutherland, Ph.D., 2455 Prairie Ave., Evanston, Ill., Consulting Statistician

Engineering Section

Nicholas A. Bilandic, 2820 S. Wells St., Chicago 16, Ill., Asst. Sanitary Engineer, Cook County Dept. of Public Health

B. J. Doherty, Public Cleansing Dept., Municipal Offices, Singapore, Superintendent

Melvin N. Goldman, 2129 W. Gaulbert Ave., Louisville, Ky., Training Officer, State Dept. of Health

Harold N. Kingsbury, M.P.H., 1322 Chandler St., Madison 5, Wis., Assoc. Public Health Engineer, Water Pollution Division, State Board of Health

Frank G. Manning, M.C.E., 27 Glenwood Ave., Jersey City 6, N. J., Engineer, Interstate Sanitation Commission

E. Yates McBrayer, Route 3, Shelby, N. C., Senior Sanitarian, Gaston County Dept. of Public Health

George B. Mebus, C.E., Northwestern National Bank Bldg., Glenside, Pa., Consulting Engineer

Frederick J. Olsen, Rm. 5003, 300 Indiana Ave., N.W., Washington, D. C., Public Health Engineer, Board of Health

Joseph W. Price, M.S.E., 720 Catharine St., Ann Arbor, Mich., Public Health Engineer, Washtenaw County Health Dept.

Harold R. Shipman, M.S., 2231 Stinson Blvd., Minneapolis 18, Minn., Assoc. Public Health Engineer, State Dept. of Health

Frederico A. L. Velloso, C.E., Franco Velasco 8, Salvador, Bahia, Brazil, S. A., Sanitary Engineer, Servico de Saude do Interior

Joe Williamson, Jr., P. O. Box 1548, Daytona Beach, Fla., Vice-President and Office Manager, Florida Office, Russell & Axon, Consulting Engineers

Harvey E. Wirth, 2726 Kendall Ave., Madison 5, Wis., Principal Public Health Engineer, State Board of Health

Industrial Hygiene Section

J. Walter Hough, M.D., P. O. Box 152, Kensington, Md., Medical Officer, Bureau of Medical Services, U. S. Public Health Service

Raymond Hussey, M.D., M.A., 535 North Dearborn St., Chicago 10, Ill., Scientific Director, Council on Industrial Health, American Medical Assn.

Food and Nutrition Section

Maxine Armstrong, M.S., 321 Peck St., Chippewa Falls, Wis., Nutritionist, State Board of Health

Katharine Brown, M.S., 135 South LaSalle St., Chicago 3, Ill., Educational and Home Economics Director, Cereal Institute, Inc.

Elizabeth Bussing, Young & Rubicam, Inc., 285 Madison Ave., New York 17, N. Y., Publicity Writer

Susan R. Christian, Route 7, Cullman, Ala., Student, Columbia Univ.

Forrest B. Croll, D.V.M., 411 Minnesota Ave., Kansas City 4, Kans., Veterinary Inspector, State Board of Health

Mary R. Donovan, Trinity Court, 175 Dartmouth St., Boston, Mass., Nutritionist, City Health Dept.

Jean L. Granger, 1558 N. Commonwealth Ave., Los Angeles 27, Calif., District Nutritionist, City Dept. of Health

Ruth B. Hayes, 95 North Broadway, White Plains, N. Y., Home Economist, Westchester County Dept. of Family and Child Welfare

Paul E. Howe, Ph.D., 3601 Connecticut Ave., N.W., Washington 8, D. C., Nutrition Consultant, Bureau of Animal Husbandry, U. S. Dept. of Agriculture

E. J. Lease, Ph.D., South Carolina Experiment Station, Clemson, S. C., Head, Nutrition Dept.

T. M. Lukes, M.S., 122 S. Illinois St., Anaheim, Calif., Bacteriologist and Sanitation Inspector, Real Gold Citrus Products

Rosa C. Macri, M.S., 3626 Maple Ave., Dallas, Tex., Nutritionist, Chronic Disease Division, Diabetes Demonstration Program, U.S.P.H.S.

William C. Moughon, D.V.M., 3750th Med. Group, Sheppard Air Force Base, Tex., Base Veterinarian

Bernard L. Oser, Ph.D., 48-14 Thirty-third St., Long Island City 1, N. Y., Vice-President and Director, Food Research Laboratories, Inc.

Ethel Patterson, M.S., 1352 Kenilworth Ave., Lakewood, Ohio, District Nutrition Consultant, State Dept. of Health

Kathleen Scobie, M.S., 55 Shattuck St., Boston 15, Mass., Assoc. in Maternal and Child Nutrition, Dept. of Maternal and Child Health, Harvard School of Public Health

Clara A. Storvick, Ph.D., School of Home Economics, Oregon State Coll., Corvallis, Ore., Professor of Foods and Nutrition

Mabel Todd, M.S., State Health Department, Richmond 19, Va., Nutrition Consultant

Maternal and Child Health Section

Elinor F. Downs, M.D., 4 High Road, Bronxville, N. Y., Medical Officer, Maternal and Child Health Section, World Health Organization

Marion M. Sniffen, M.A., 1186 Laurel St., Berkeley 8, Calif., Nutritionist, Univ. of California Agricultural Extension Service

Public Health Education Section

John T. Carpenter, 315 Shelburne St., Burlington, Vt., Exec. Director, Vermont Tuberculosis & Health Assn.

John K. Ellis, M.P.H., 1426 Franklin Ave., Springfield, Ill., Health Education Representative, State Dept. of Public Health

Delroy J. Evans, Jr., R.R. 1, Tipp City, Ohio, Director of Health Education, USAF Air Materiel Command

Irene E. French, 496 Lowry Medical Arts Bldg., St. Paul, Minn., Exec. Asst., Minnesota State Medical Assn.

A. Cathryn Johnson, M.A., 204 Auburn Ave., S.W., Atlanta, Ga., Consultant in Health Education, State Dept. of Health

Neal D. Lenhart, 136 Randolph Ave., Jersey City 5, N. J., Sanitarian, U. S. Navy

Walter J. Maddock, Federal Bldg., Bismarck, N. D., State Director, Farmers Home Administration, U. S. Dept. of Agriculture

Lura R. Martin, M.P.H., Florence County Health Dept., Florence, S. C., Health Educator

Pauline K. Matthis, M.P.H., 412 Terry St., Longmont, Colo., Exec. Secy., Boulder-Larimer Health Assn.

Eva H. Moen, 605 So. Massachusetts, Sedalia, Mo., Public Health Educator, State Division of Health

William F. Monahan, 411 Burk St., Oakland 10, Calif., Student in Public Health Education, Univ. of California, School of Public Health

Mary-Elizabeth Moskopp, M.P.H., Mary Kirkland Hall, Nashville 4, Tenn., Instructor in Nursing, Vanderbilt Univ.

Edward C. Prest, 1670 Beverly Blvd., Los Angeles 26, Calif., Asst. Exec. Secy., Los Angeles County Tuberculosis and Health Assn.

William H. Richardson, P. O. Box 367, Raleigh, N. C., Publicity Specialist, State Board of Health

Clotilde P. Sanguinet, M.A., 130 East Washington St., Indianapolis, Ind., Director of Health Education, Indiana Tuberculosis Assn.

Ellsworth R. Thwing, M.Ed., 1130 South Seventh St., Springfield, Ill., Director of Health Education, Illinois Tuberculosis Assn.

Raymond Torr, New York City Cancer Committee, 535 Fifth Ave., New York 17, N. Y., Director of Public Relations

Inez C. Torrey, R.N., 321 West 8th St., Hays, Kans., College Nurse, Fort Hays State College

Public Health Nursing Section

Eva L. Connelly, P. O. Box 597, Independence, Kans., Public Health Nurse, Montgomery County Health Dept.

Freta P. Erickson, R.N., 2017 North Seventh St., Springfield, Ill., Public Health Nurse, State Dept. of Public Health

Hilda G. Hope, 37 Glen Green, Winchester, Mass., Exec. Director, Medford Visiting Nurse Assn.

Elizabeth B. Marshall, M.N., 22 Arsenal St., Portland 4, Me., Coördinator of Public Health, Maine General Hosp.

Ola M. McCreery, R.N., 118 Pace St., Macon, Mo., Public Health Nurse, Macon County Health Dept.

Catherine C. Norton, R.N., 1102 Third Ave., Antigo, Wis., City Nurse

Susie T. O'Donnell, 241 Prather Bridge Rd., Toccoa, Ga., Public Health Nurse, Stephens County Health Dept.

Anne Poore, Lincoln City-Lancaster Co. Dept. of Health, 935 R St., Lincoln, Nebr., Chief Nurse

Geneva M. Theis, R.N., 406½ Gallatin St., Vandalia, Ill., Nursing Consultant, State Division of Services for Crippled Children

Edithe M. Turner, R.N., 610 North Bridge, Chippewa Falls, Wis., Advisory Public Health Nurse, State Board of Health

Edith S. Walt, R.N., Box 69, Caldwell, Kans., Tuberculosis Nurse, Sumner County Tuberculosis Assn.

Hulda O. Wegener, 4907 Canterbury Rd., Kansas City 3, Kans., Supervisor of Nurses, Kansas City-Wyandotte County Health Dept.

Nona M. West, R.N., Court House, Watseka, Ill., Nurse, Iroquois County Board of Supervisors

Abbie G. Whidden, 3664 Olive St., St. Louis 8, Mo., Director, Visiting Nurse Assn. of St. Louis

Epidemiology Section

Lucius F. Badger, M.D., 605 Volunteer Bldg., Atlanta, Ga., In Charge, Leprosy Control and Investigation, U.S.P.H.S.

Lt. Comdr. Francis A. Chevrefils, MSC, Res. & Dev. Bd., Office of Secy. of Defense, Washington 25, D. C., Navy Secretary, Committee on Biological Warfare

Lt. Col. Fratis L. Duff, M.C., Johns Hopkins School of Medicine, Baltimore, Md., Professor of Military Science

Major Harold V. Ellingson, USAF (MC), School of Aviation Medicine, Randolph Field, Tex., Chief, Dept. of Global Preventive Medicine

John Emmett, M.D., 341 West Washington St., Phoenix, Ariz., Epidemiologist; Medical Officer in Charge, Polio-Fly Control Project, U.S.P.H.S.

Julius Katz, M.D., State Dept. of Health, 28 Howard St., Albany 7, N. Y., Director, Bureau of Tuberculosis Control

School Health Section

Aaron L. Andrews, M.S., R. R. 1, Box 251-D, New Augusta, Ind., Instructor in Health Education, Dept. of Public Health, Indiana Univ. School of Medicine

Gertrude Byrne, M.S., 8620 Drexel Ave., Chicago 19, Ill., Instructor in Health and Physical Education, Chicago Teachers College

J. Watson Harmeier, M.D., Board of Education Bldg., Pittsburgh, Pa., Chief Medical Examiner, Board of Public Education

John G. Lynn, IV, M.D., University of Hawaii, Honolulu 14, Hawaii, Chief, Bureau of Mental Hygiene, Dept. of Health

Dental Health Section

Francis D. Baty, 4810 Brooklyn, Kansas City, Mo., Health Program Representative, U.S. P.H.S.

Ann C. Faivre, R.D.H., 911 Rocky Grove Ave., Franklin, Pa., Dental Health Educator, State Dept. of Health

Elvira L. Grabow, 802 E. Washington St., Iowa City, Iowa, Nurse Consultant in Dental Health, State Dept. of Health

Fred J. Lucchesi, D.D.S., 4811 Warrington Ave., Philadelphia 43, Pa., Chief, Dental Dept., Philadelphia General Hosp.

Paul B. Mallinckrodt, D.D.S., 232½ East High St., Jefferson City, Mo., Public Health Dentist, State Division of Health

John E. Zur, D.D.S., M.P.H., 1921 N. Sayre Ave., Chicago, Ill., Regional Dental Consultant, State Dept. of Public Health

Medical Care Section

Ruth R. Adams, M.S.W., P. O. Box 375, St. Thomas, Virgin Islands, Medical Social Work Consultant, Virgin Islands Dept. of Health

Muriel F. Conrad, M.S.P.H., 305 South Fourth Ave., Highland Park, N. J., Public Health Executive, Middlesex County Chapter, New Jersey Heart Assn.

Robert F. Freeman, 1220 Fidelity Medical Bldg., Dayton 2, Ohio, Exec. Secy., Montgomery County Medical Society

Floyd K. Helsby, 1021 McGee, Kansas City 6, Mo., Exec. Director, Blue Cross-Blue Shield

Mary M. Maxwell, M.S.S., University Hospi-

tals, Iowa City, Iowa, Director, Social Service Dept., Univ. of Iowa Hospitals

Unaffiliated

Helen M. Boss, M.A., 107 S. Harvard, Apt. B, Albuquerque, N. M., Administrative Asst., State Public Health Laboratory

Juliette P. Clapp, M.S.W., 812 Indiana St., Lawrence, Kans., Psychiatric Social Worker, Lawrence-Douglass County Health Dept.

Grace E. Field, M.D., P. O. Box 617, Juneau, Alaska, Acting Director, Division of Communicable and Preventable Disease, Alaska Dept. of Health

M. Otis Flanary, M.P.H., 1003 Anderson St., Bristol, Tenn., Principal Sanitarian, Sullivan County Health Dept.

Albert T. Knabb, 548 Brookline, Weirton, W. Va., Environmental Sanitarian, Hancock County Health Dept.

ASSOCIATION COMMITTEE ON PUBLIC HEALTH IN THE DEFENSE PROGRAM

By authority of the Executive Board, a new Association Committee was established in September, the Committee on Public Health in the Defense Program, under the Chairmanship of Harry S. Mustard, M.D., of New York City.

Under the terms of reference as set up by the Executive Board, this committee will be concerned primarily with the various aspects of public health in national civil defense, such as civil and military man power procurement and assignment, deferment, personnel training, etc. Close liaison will also be maintained with the three Standing Committees of the Association, each of which is concerned in the field of public health as it relates to a defense program, namely, Professional Education, Research and Standards, and Administrative Practice.

The committee includes a state health officer, who is Chairman of the special committee on a similar subject for the Association of State and Territorial Health Officers; a nurse similarly connected with the joint committee of the nursing agencies; a public health engineer; a link with the Advisory Panel on Medicine and Public Health of the National Security Resources Board; a dean of a school of public health who is president of the Association of Schools of Public Health; and a city health officer. The committee also includes a consultant from the Public Health Service.

Beside Dr. Mustard, other members of the committee are: Anna M. Fillmore, R.N., Vlado A. Getting, M.D., Professor John M. Henderson, William P. Shepard, M.D., James S. Simmons, M.D., Huntington Williams, M.D., and W. Palmer Dearing, M.D., Consultant from the U. S. Public Health Service.

January and February Journals Wanted

Due to the large number of new memberships and subscriptions received during the first six months of the year, the supply of January and February, 1950, *Journals* has become depleted and the Circulation Department cannot supply these issues to certain members and subscribers whose names were added to the mailing list late in June.

Contributions of the January and/or February *Journals* will be welcomed and should be sent collect to the American Public Health Association, 1790 Broadway, New York 19, N. Y.

A.P.H.A. membership application blank on page XXXI

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

POSITIONS AVAILABLE

Public Health Physician as Health Officer of a newly established county health department. Salary range $7,200–$9,000. Qualified health officer may start above minimum. G. Alzeno, D.D.S., President, JoDaviess County Board of Health, Stockton, Ill.

Health Officers: Vacancies in West Virginia for District Health Officers. Qualified men desired. Salary begins at $7,200 per year. Liberal travel allowance. Write: Dr. N. H. Dyer, State Director of Health, Charleston 5, West Va.

Professional Secretary for Health Council and Assistant to Family and Child Welfare Council. Salary $4,500. Write: Thomas W. Fetzer, Executive Secretary, Council of Social Agencies, 1020 McGee, Kansas City, Mo.

Health Commissioner wanted for full-time position in a recognized general health district. Salary open.

Public Health Nurse wanted for full-time position in a recognized general health district. Salary open. For information on above two positions, write: Dr. R. E. Merrill, Acting Health Commissioner, Fulton County Health Department, Wauseon, Ohio.

Nursing Consultants wanted in field of public health, industrial hygiene, maternal and child care, salary range $325–$395. Immediate placement with California Department of Public Health. Write: Recruitment Section, State Personnel Board, 1015 L Street, Sacramento, Calif.

State Director, Public Health Nursing: Several years experience in a supervisory consultative or administrative capacity. Salary range $4,800 to $6,000 plus travel expenses. Civil Service, retirement. Write: Harold M. Erickson, M.D., State Health Officer, Portland 5, Ore.

Public Health Nurse Supervisor for generalized service. Minimum requirements, public health certificate or a year of graduate study in Public Health nursing. Salary $3,576–$4,020; 40 hour week; retirement plan; sick leave; and other benefits. Car furnished.

Public Health Nurses—Salaries $3,072–$3,432; $2,592–$2,952; depending upon qualifications, training, and experience. Car furnished.

For information on above positions write: Charles A. Neafie, M.D., Director, Department of Public Health, Pontiac 15, Mich.

Wanted: **Public Health Nurses,** generalized service; salary $2,610; $2,778; $2,946; 40 hour week. Good retirement plan, inservice training. Car not necessary. Certification and experience not required but may be given special consideration. Write: Supt. of Public Health Nursing, Health Department, 238 City Hall, Cincinnati 2, Ohio.

Public Health Nurses: For an organized expanding public health program; Bachelor's Degree and California PHN certificate required; adequate vacation, sick leave, retirement plan. Car required, 6¢ per mile allowance. Salary range starts at $247 per month. For further information on these positions, write: R. S. Westphal, M.D., Health Officer, Santa Rosa, Calif.

Junior Public Health Nurse for general county nursing service. Beginning salary $3,000 year. Registration in Texas or eligibility to secure registration required by Merit System; 5½ day week, two weeks annual vacation, two weeks sick leave; liberal car allowance. For complete information write Dr. Fred O. Tonney, Medical Director, or Mrs. Maude Lorance, R.N., Director of Nursing Services, Cameron County Health Unit, San Benito, Tex.

Industrial Hygiene Engineer. Minimum of two years experience in industrial hygiene engineering. Graduate engineer preferably supplemented by graduate training in industrial hygiene engineering. $3,720 to start advancing to $4,560 plus travel expenses; civil service status, vacation and sick leave. Write: A. T. Johnson, Personnel Director, Oregon State Board of Health, Portland 5, Ore.

Public Health Nurses for expanding generalized service, including field training program with State University. Rural and urban experience in San Francisco Bay area. Completion of approved course in public health nursing required; 6½¢ on personal car. Salary range automatic

$3,000 minimum to $3,696 maximum; 15 calendar days vacation; Civil Service retirement, two weeks sick leave for first year, with increase thereafter. Write: Director of Public Health Nursing, Alameda County Health Department, San Leandro, Calif.

Wanted — **Qualified Public Health Nurses** for staff positions in County Health Department; generalized program. Starting salary $3,192 to $3,768 based on education and experience.

Also need **Public Health Nursing Supervisor:** starting salary $3,372 to $4,112. All applicants must hold certificate as Registered Public Health Nurse, issued by California State Board of Public Health; 38 hour week; mileage or some county cars available.

Apply to Director R. Lynn Knight, M.D., Tulare County Health Department, Box 110, Visalia, Calif.

Medical Health Officer for Shelby-Effingham County Health Department; salary range $6,900–$9,000; may start above minimum; must have capacity for good public relations. Write: Mr. J. H. Griffin, Teutopolis, Illinois or Dr. O. G. Kauder, Findlay, Ill.

Director of Public Health Nurses for a generalized nursing program in an official agency. Applicant should have preparation and experience which meet NOPHN standards. Ability to carry on inservice program of staff education is requisite; retirement plan; 5 day week, 2 weeks vacation, and 2 weeks sick leave; Salary open.

Wanted—Qualified Public Health Nurse for generalized service in an official agency. Bedside care on a demonstration and supervision basis. Car furnished. Beginning salary $2921.50, 5 day week, 2 weeks vacation, 2 weeks sick leave, retirement plan.

For information on above positions, write: Board of Health, LaCrosse City Health Department, LaCrosse, Wis.

Public Health Nurses desiring experience in generalized health program in Southern Michigan, between Chicago and Detroit. Salary range depending on qualifications and experience, $3,000 to $3,300. Depreciation and mileage allowance on own car. Four weeks vacation yearly, liberal sick leave. Field training area for public health nurses. Write: Medical Director, District Health Department, Hillsdale, Mich.

ANNOUNCEMENTS

Opportunities in Alaska

1. **Field Physicians:** Immediate openings on marine and mobile units. Minimum qualifications for Field Physicians, M.D. and year's internship. Senior Field Physician, above plus year graduate training in pediatrics, obstetrics or public health. Base salary on board marine and mobile units, $435 for Field Physicians, $535 for Senior Field Physicians per month plus subsistence.
2. **Sanitary Engineer:** for Department of Health in Juneau. Minimum qualifications—graduation with engineering degree from accredited engineering school; experience in professional engineering or in general sanitation work is preferable. Must be a U. S. citizen and must be able to travel a large part of the time. Salary range: $370–$511.75, plus 15% int. diff.
3. **District Sanitary Engineers for Fairbanks, Anchorage, and Juneau.** Minimum qualifications—graduation from accredited college of engineering with one year of general public health engineering work in administrative capacity. Must be U. S. citizens, and eligible for registration in Alaska as professional engineers and must be able to travel a large part of the time. Salary range: $440–$621 plus 15% int. diff.
4. **Nutrition Consultant for Department of Health in Juneau.** Minimum qualifications—undergraduate degree from recognized university or college with a major in foods and nutrition or the equivalent of a major in this field; minimum of one year of full-time graduate academic study with advanced courses in human nutrition and its application to public health; a minimum of 4 years of full-time paid employment within the last 10 years as a nutritionist in the health or welfare fields. Salary range: $440–$621 plus 15% int. diff.

For complete information on above positions, write: Alaska Department of Health, Box 1931, Juneau, Alaska.

St. Louis Civil Service Commission
Examination for Positions of Public Health Engineer I and II
Salary: $282–$345 per month

Application for the above examinations will be accepted until further notice. Basic requirements are: graduation from a recognized college or university with specialization in civil, chemical, mechanical, or public health engineering. Salary range for Public Health Engineer I—$282–$310; for Public Health Engineer II—$309–$345. Vacation, holidays and sick leave privileges are included in addition to monthly pay.

Examination for Position of Dairy Sanitarian (Males only)
Salary: $309–$345 per month

Application for the above examination will be accepted until further notice. Basic requirements are some experience in inspection or management of dairy farms and graduation from a recognized college or university with specialization in sanitary engineering, dairy husbandry, agriculture or veterinary medicine. Additional information and application blanks for the above positions may be secured from Department of Personnel, 235 Municipal Courts Building, St. Louis, Mo.

United States Public Health Service
Regular Corps Examination for Dental Officers

A competitive examination for appointment of Dental Officers in the Regular Corps of the United States Public Health Service will be held on January 15, 16 and 17, 1951, and applications must be received no later than December 11, 1950. Appointments are permanent and provide opportunities for a life career in clinical, research, and public health dentistry. Benefits include periodic pay raises, 30 days annual leave, sick leave, full medical care, and many of the usual privileges extended to officers of the military force.
Basic requirements for Assistant Dental Surgeon—at least seven years of educational training and professional experience subsequent to high school, including graduation from an approved school of dentistry; for Senior Assistant Dental Surgeon—at least ten years of educational training and professional experience subsequent to high school, including graduation from an approved school of dentistry.
For application forms and additional information write to: Surgeon General, U. S. Public Health Service, F.S.A., Washington 25, D. C., Attention: Division of Commissioned Officers.

Milwaukee City Service Commission

The following positions are available in the service of the City of Milwaukee:

1. **Public Health Laboratory Superintendent**—beginning salary $500 per month advancing to $575; maximum age 50 at time of examination; must be graduate of a college or university of recognized standing and received academic training in bacteriology and chemistry; must have five years of experience in a laboratory performing chemical and bacteriological examinations of which at least two years must have been in responsible charge of work.
2. **Assistant Superintendent of Hospital Nursing**—beginning salary $300 per month advancing to $350; maximum age 45; must be graduate of a recognized school of nursing and of a university with a major in hospital administration, ward nursing administration or nursing education and must have at least three years of experience in hospital nursing of which one year must have been administrative or supervisory work.
3. **Public Health Educator II**—beginning salary $300 per month advancing to $350; maximum age 40; applicants must be graduates of a college or university of recognized standing with a major in education or the biological sciences or equivalent, followed by at least one year of graduate study and a degree of Master of Science or Master of Public Health or Doctor of Public Health in public health education and at least two years of experience in health education in a school system or a private or public health agency.
4. **Public Health Educator I**—beginning salary $250 per month advancing to $300; maximum age 40; applicants must be graduates of a college or university of recognized standing with a major in education or the biological sciences or equivalent followed by at least one year of graduate study and a degree of Master of Science or Master of Public Health or Doctor of Public Health in public health education and at least one year of experience in health education in a school system or a private or public health agency.

All positions carry civil service status and job permanency, vacation and sick leave privileges and membership in an actuarially sound retirement system. Additional information and application blanks for the above positions may be secured from City Service Commission, City Hall, Milwaukee 2, Wis.

POSITIONS WANTED

Milk Sanitarian—B.S. In public health five years, also experience in industry. Both generalized and milk control experience. Write **Box S-6,** Employment Service, A.P.H.A.

Ph.D.—Bacteriology, serology, chemistry, parasitology, hematology, including blood bank and Rh-work; married; 38; now employed; 7½ years research and clinical laboratory experience; adaptable to work comprising medical, hygienic, and industrial problems; most highly qualified for position of real responsibility. Write: **Box L-15,** Employment Service, A.P.H.A.

Health Educator: M.Ed., M.P.H., male, 40; experienced in adult teaching, group work, and community organization; available immediately. Write: **Box H.E.-28,** Employment Service, A.P.H.A.

Health Educator: M.P.H. teaching and field work requirements fulfilled; foreign travel; continuing professional study. Civilian and military medical experience; wide industrial work experience; short time VD Educator. References. Male, white, 42, not subject to military draft for member of reserve. Desires any employment leading to "Qualified Health Educator." Write Box **H.E.-29,** Employment Service, A.P.H.A.

Health Educator: M.S. in Education and Professional Diploma "Specialist in Health Education with Official and Voluntary Health Agencies." Ten years experience with large municipal health department. Write **Box HE-18,** Employment Service, A.P.H.A.

Sanitary Engineer: B.S., M.C.E. 36 years; 12 years experience including work in large eastern city health department; Corps of Engineers, Sanitary Corps, U. S. Army; Sanitary Engineer in charge of large federal agency. Design and operation experience in all phases. Professional engineering license, New York State. Write: **Box E-8,** Employment Service, A.P.H.A.

Advertisement

Please direct all inquiries to Burneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago 11, Illinois

Opportunities Available

WANTED—(a) Chief, state department of preventive medicine; opportunity faculty appointment; university center; South. (b) Health commissioner; rural health district including school health program; headquarters in college town of 25,000. (c) Woman physician to direct student health department, young women's college; duties include teaching Hygiene; East. (d) Deputy director of health and directors of disease control, mental health, tuberculosis control, mental hygiene, maternal and child hygiene, cancer control; state appointments. (e) Health officers and tuberculosis specialists; urban, semi-rural, and rural areas; state department; expansion program; (f) Director, student health department; midwestern university. (g) Assistant director, county health department; California. **PH11-1.**

WANTED—(a) Health education directors of city and county tuberculosis association; East. (b) Sanitary Engineer; public health engineering background desired; Arabia. (c) Public Health man with Master's or doctor's degree to serve as chief of state department, health education; experience in directing state-wide program desirable. (d) Executive secretary-health education; three-county district; preferably one qualified for teacher training by affiliation with state university. (e) Executive secretary; administrative experience in tuberculosis association work desirable; state tuberculosis association; around $6,000. (f) Two health educators; to assist in expansion program, health organization; one should be qualified in directing publicity; California. **PH11-2.**

WANTED—(a) Supervisor and staff nurses; two-county health department; generalized program; Northern California. (b) Two public health nurses to serve as consultants; educational program; insurance company; headquarters: Boston or Chicago area. (c) Public health administrators, supervisors and staff nurses; state department; expansion program. (d) School nurse; public schools; town of 35,000; Northwest. (e) Educational director, assistant director of public health nursing section and staff nurses; state department; headquarters in university medical center; West. (f) Director, visiting nurse association; staff of 10; Midwest. **PH11-3.**

Opportunities Wanted

PUBLIC HEALTH NURSE seeks consultant or administrative post in vicinity New York City; M.A. (Education); work for Ph.D. completed excepting dissertation; 12 years' public health nursing in supervisory capacities.

PUBLIC HEALTH PHYSICIAN; 6 years' successful general practice; M.P.H., Johns Hopkins; 8 years' experience in public health administration.

PUBLIC HEALTH NURSE; M.A., Health Education; has completed all work toward her doctorate; 8 years, director of health and health educator, metropolitan public school system.

PUBLIC HEALTH DENTIST; M.P.H.; past several years, on staff state department of dentistry.

HEALTH EDUCATOR, M.S., D.P.H.; 1 year, research fellow, and 2 years, teaching fellow, university school of public health; 5 years, associate professor of hygiene and public health; several years, director, health education, state department of health.

PUBLIC HEALTH ENGINEER; B.S. Chemical Engineering, M.S. Sanitary Engineering; 12 years' interesting experience including 4 years in South America; prefers supervisory work with opportunity for field work and research.

NEWS FROM THE FIELD

WHO NEWS

An Impressive Two Years

The second anniversary of the World Health Organization as a permanent specialized agency of the United Nations was celebrated on September 1 by a summary of some of its activities. During the two years it has given aid and advice on health problems to nearly 80 countries and territories. Highest priority has been given to action against malaria, tuberculosis, and venereal diseases. These three, it is estimated, cause 10,000,000 deaths annually. Several medical research and training centers have been established—a tuberculosis research office in Copenhagen, a tuberculosis training center in Istanbul, anesthesiology centers in Copenhagen and Prague, and the World Influenza Center in London. The first *International Pharmacopoeia* has been completed and is in press. Emergency aid has been given in a variety of catastrophes—earthquakes, epidemics, etc.

On the occasion of the 2nd birthday, Martha M. Eliot, M.D., of the United States, assistant director-general of WHO, said, "The work provided for under the WHO Constitution has been pressed forward to enable the organization to give assistance to governments in developing national health administrations and finding ways of meeting the most urgent problems in such fields as control of communicable diseases, maternal and child health services, nutrition, and environmental sanitation. In the early stage the difficulties have been many, but greater progress has been made than would have seemed possible two years ago. The work will go forward with enthusiasm in the knowledge that, through WHO and cooperating agencies, essential pioneer work has been done to raise health levels everywhere. The work is clearly serving the cause of international security, since improved health leads to increased productivity and thus raises general living standards. This is an important factor in establishing economic and social foundations for real peace. Furthermore, we believe that WHO's work is establishing patterns for promoting understanding among the world's peoples and will therefore ultimately have repercussions reaching far outside the health field."

A New Deputy Director-General

With the appointment of Dr. Pierre Dorolle as deputy director-general WHO's top command is now complete. Dr. Dorolle, formerly director of health services in Indo-China, is chief deputy to the director-general, Dr. Brock Chisholm. In addition, there are three assistant directors-general, Dr. Martha M. Eliot, in charge of advisory services, Dr. S. S. Sohkey of India, in charge of technical services, and Milton Siegel, in charge of administration and finance.

Yaws Control Campaign in Thailand

Yaws is reported to affect at least 200,000 persons in Thailand. It is estimated that four-fifths of those suffering from the infective stages of disease are persons under 18 years and women of childbearing age. A WHO-UNICEF training and demonstration program for the control of this disease has been undertaken as the springboard for expanding existing yaws-control services into a nation-wide campaign. Dr. Donald R. Huggins, formerly in charge of yaws and venereal disease control in Trinidad, B.W.I., and an expert consultant of the WHO and UNICEF, has gone to Thailand to aid the Thai health authorities in organization and day-to-

day operations of the training program in the field. He is assisted by Dr. K. Urdal of the Oslo Bacteriological Institute of Norway, a WHO-UNICEF laboratory expert, and a WHO-UNICEF public health nurse.

Rabies Activities in the Americas

Late in August a 3 day *rabies conference for the Caribbean* area was held in Kingston, Jamaica, under the auspices of the Pan American Sanitary Bureau. The chairman of the conference was Dr. E. S. Ferreira, acting director of Jamaica's Medical Services; its secretary was Dr. Benjamin D. Blood of PASB's Veterinary Public Health section. The areas rabies situation and control measures were reviewed, information on the latest techniques exchanged, and recommendations made for concerted anti-rabies measures among the Caribbean governments. The Conference agreed upon a series of recommendations to be carried out by the various governments for the diagnosis, reporting, and control of rabies in this area, and asked PASB to collect and distribute data on incidence, provide a training course in laboratory diagnosis of the disease, and arrange for examination of specimens in the rabies laboratory of the Communicable Disease Center, U. S. Public Health Service.

The *anti-rabies vaccine* for the treatment of human beings, prepared in the rabies laboratory of the Mexican National Institute of Hygiene with the technical assistance of the Pan American Sanitary Bureau, meets the standards set by the Department of Biological Control of the U. S. National Institutes of Health.

The Pan American Sanitary Bureau and the U. S. Public Health Service, on invitation of the Puerto Rican Commissioner of Public Health, Dr. Juan A. Pons, coöperated to *control* an *outbreak* of *rabies* in that island late in March. The infection was diagnosed in the rabies laboratory of the U. S. Communicable Disease Center. The PASB dispatched Dr. Aurelio Malaga Alba of its Veterinary Public Health Section to give consultant service and technical assistance to the Island health authorities. With the assistance of Dr. Ernest S. Tierkel of the U. S. Public Health Service, he gave a course in laboratory diagnosis of the disease.

The three towns where the outbreak occurred were placed under quarantine. About 3,000 dogs were vaccinated in the infected area and about 4,000 stray dogs destroyed. The last case was reported early in May.

Later a mongoose trapping operation was begun to determine whether this animal is a vector of rabies.

THREE MENTAL HEALTH GROUPS UNITE

The National Association for Mental Health, Inc. has been created by the merger of three existing organizations—the National Committee for Mental Hygiene, the National Mental Health Foundation, and the Psychiatric Foundation. Its first board meeting was held on September 13 after a certificate of consolidation was filed in the New York Department of State. A special legislative statute made the merger possible.

The medical director is George S. Stevenson, M.D., who has been medical director of the National Committee for Mental Hygiene since 1939. President of the new group is Oren Root, New York lawyer who has announced that he will give full time to the work. Chairman of the Board is Arthur H. Bunker, president of Climax-Molybdenum Corporation.

The staffs of the three former organizations will comprise the staff of the new agency which has headquarters at 1790 Broadway, New York.

PHILADELPHIA PUBLIC HEALTH SURVEY

Philadelphia's extensive public health services were studied in detail through

a coöperative project of the Health and Welfare Council, the Department of Health, and the Philadelphia City Planning Commission. The survey evolved from efforts to decentralize further the city's public health services through health centers. Health Center Administration occupies a third of the 241 page report. Other parts are Selected Indices and The Public Health Resources. The report has 83 charts and 26 tables.

Carl E. Buck, Dr. P. H., resident lecturer in public health, School of Public Health, University of Michigan, and Roscoe P. Kandle, M.D., field director, American Public Health Association, were co-directors of the survey. Simultaneously a detailed study of the tuberculosis problem was made under the direction of Russell E. Teague, M.D., of the Public Health Service.

The report of the tuberculosis study including a particularly significant discussion of medical social services in this field is also to be found in *Public Health Reports* of March 3, 1950.

The full report from The Health and Welfare Council, 311 S. Juniper Street, Philadelphia 5, $2.

INCREASED BENEFITS FOR CHILDREN

The 1950 amendments to the Social Security Act have authorized substantial increases for the various activities of the U. S. Children's Bureau. Heretofore, Congress has been authorized to make annual grants of $22 million, one-half for child health services, about one-third for crippled children's services. For the fiscal year 1951–1952 and thereafter annual grants of 41½ millions are authorized. This will enable the states to extend their present services to reach more children, to train workers in the field of child health, and develop programs for the handicapped children for whom there are currently no public services.

What may be expected from this expanded program is told in a Children's Bureau Fact Sheet of September 1, 1950. It consists of a series of questions and answers under the general title of "How the 1950 amendments to Title V of the Social Security Act benefit children." It points out that under the original Act passed in 1935 annual grants were authorized to a total of slightly over $8 million. It further points out that beyond meeting certain minimum standards the states manage their own programs according to their own needs rather than on a national program.

Along with this fact sheet, the Children's Bureau has sent out three Department of Labor bulletins, *What Farmers Should Know about Child Labor Provisions of the Federal Fair Labor Standards Act, Help Get Children into School . . . and Out of Farm Jobs during School Hours,* and *Priorities in Health Service for Children of School Age.* This last, issued by a special Committee of the Children's Bureau, the Office of Education, and the Public Health Service, is the resumé of findings of a recent conference supported by the Rockefeller Foundation for the purpose of drafting a technical statement of a desirable school health service program.

DEFERMENT OF PUBLIC HEALTH WORKERS

Inquiries have reached the office of the American Public Health Association relating to the method for requesting deferment of persons called up for military duty in the United States who wish consideration of the essential nature of their occupations. Inquiry in Washington indicates that the Selective Service System directs local authorities who are considering the merits of requests for deferment either from the individual called or from his employer to look up his position in the official listing of essential industries and occupations published jointly by the Departments of Labor and Commerce. As a basis for the

first decision in the selective process, the individual is given further consideration if the title of his position appears in the essential list.

It was discovered that the listing as it stood in early September included health and medical services under the definitions of "Major Group 80," but that the definition of essential services was entirely centered on the care and treatment of sick persons. As it then stood this definition did not include public health services essential to the protection and preservation of the health of the people, or medical and related research.

Dr. Hugh R. Leavell, Chairman of the Executive Board of the Association, directed that an emphatic opinion be registered with the authorities responsible for this list in the belief that public health services affecting the entire population certainly deserve recognition in Major Group 80 and urgently requesting that steps be taken to modify the existing statement so that it would read as follows:

"Major Group 80—Medical and Health Services—

"Includes establishments engaged in providing medical and surgical care to individuals, public health services essential to the protection and preservation of the health of the people and medical and related research. Associations, or groups primarily engaged in rendering medical or health services to members, or engaged in administering such services, or in furnishing health information to the public, or to medical and public health workers are included."

The Department of Labor has been requested to advise the Association of steps that are taken to accomplish this change. In the meantime it should be noted that persons whose occupations are listed in the essential listing are not automatically deferred by virtue of that fact, but are given consideration on the merits of each individual case. Persons occupying positions with titles not registered will find difficulty in getting consideration for deferral unless the indicated change is made.

VETERINARY SPECIALTY BOARD

The American Board of Veterinary Public Health held its first annual meeting on August 21, 1950, at Miami Beach, Fla., during the American Veterinary Medical Association's convention. The following definition was adopted:

Veterinary public health is all community efforts influencing and influenced by the veterinary medical arts and sciences applied to the prevention of disease, protection of life, and promotion of the well-being and efficiency of men.

This Board is incorporated under the laws of the District of Columbia as a non-profit educational organization. Its purposes are to:

1. Further the educational and scientific progress in the specialty of veterinary public health and to encourage education, training and research in that specialty.
2. Establish standards of training and experience for qualification of specialists in veterinary public health.
3. Further the recognition of such qualified specialists by suitable certification and other means.

Officers elected by the Board are:

President: Lt. Colonel Frank A. Todd, U. S. Army Veterinary Corps

Vice President: Dr. H. J. Stafseth, professor and head of the department of bacteriology and public health, School of Veterinary Medicine, Michigan State College

Secretary: Dr. Benjamin D. Blood, chief of the veterinary public health section, Pan American Sanitary Bureau

Correspondence should be addressed to the secretary at 6315 Utah Avenue, N.W., Washington 15, D. C.

ILLUMINATING ENGINEERING SOCIETY

The Illuminating Engineering Society, at its National Technical Conference held recently in Pasadena, elected the following officers for 1950–1951:

President: Walter Sturrock, General Electric Company
Vice-President: E. M. Strong, Cornell University, Ithaca, N. Y.
Treasurer: R. F. Hartenstein, Ohio Edison Company, Akron, Ohio
General Secretary: A. H. Manwaring, Philadelphia Electrical & Manufacturing Company, Philadelphia, Pa.

The society's 1950 medal was awarded to William F. Little, Electrical Testing Laboratories, Inc., New York, for his many contributions to lighting progress. His best known work has been in photometry.

MARKLE FOUNDATION CONTINUES GRANTS

The Markle Foundation will continue for a fourth year its program of five year grants for Scholars in Medical Science to help young scientists interested in teaching and research to become established in academic medicine. Each medical school is invited to nominate one candidate. Grants of $25,000 payable at the rate of $5,000 annually, will be made to the schools over a five year period for the support of each scholar selected.

A total of 47 scholars on the staffs of 35 medical schools in the United States and Canada are now being aided by these grants, 20 of whom were chosen in 1950. Nominations for 1951 should be made to the Foundation on or before December 1. The John and Mary R. Markle Foundation, 14 Wall St., New York.

RHEUMATIC FEVER AND NUTRITION

The Utah Agricultural Experiment Station, with the coöperation of the State Health Department, the local health departments involved, and the state medical and dental societies, are studying the nutritional status in relation to rheumatic fever of a group of children in the Ogden area. It is hoped that the study will throw light on the relationships between diet and physical condition, dental health, and constituents in the blood of normal and rheumatic fever children. About 150 children with rheumatic fever and a control group of equal number of similar age and from the same economic level are being studied. The investigation is being carried on by Ethelwyn B. Wilcox, Ph.D., and Delbert A. Greenwood, Ph.D., professors respectively of nutrition and biochemistry in the Utah State Agricultural College.

DR. BAUMGARTNER RETURNS TO NEW YORK CITY

Dr. John F. Mahoney, Commissioner of Health of New York City, announced early in October that Leona Baumgartner, M.D., Ph.D., who has been on leave from the Department of Health to serve as Associate Chief of the Federal Children's Bureau since 1949, has returned to her post as Assistant Commissioner of the New York City Department of Health. Dr. Mahoney also announced that Dr. Baumgartner has been appointed a Special Consultant to the Children's Bureau, in which capacity she will advise that agency particularly on matters relating to the health and research programs of the bureau.

As Assistant Commissioner of the New York City Department of Health, Dr. Baumgartner will direct the maternal and child health services of the department, including the Bureau of School Health, Bureau of Child Health, and the Bureau of Dentistry. Dr. Baumgartner has been with the New York City Department of Health for 14 years, and has served as district health officer, and as director of the Bureau of Child Hygiene. She is on the pediatric staff of the New York Hospital, and is Associate Professor of Pediatrics, Public Health and Preventive Medicine at Cornell Medical College. Dr. Baumgartner is a member of the Executive Board, American Public Health Association.

NEBRASKA PUBLIC HEALTH ASSOCIATION

This month Nebraska is discussing whether there shall be a Nebraska Public Health Association, and, if so, developing a preliminary organization. Some 200 Nebraska public health and community health education workers, meeting in Lincoln November 20–21 to discuss public health problems in the state, will act on the Association question. The State Health Officer, Frank D. Ryder, M.D., is chairman of the local arrangements committee. The director of the Lincoln-Lancaster Health Department, R. H. Loder, M.D., is chairman of a committee sponsored by the Nebraska Association of Sanitarians to develop a State Public Health Association. All sessions are at the Hotel Cornhusker.

CHRONIC ILLNESS COMMISSION NEWS

The American Dental Association and the National Organization for Public Health Nursing recently appointed staff associates to the Commission on Chronic Illness. They are Allen O. Gruebbel, D.D.S., secretary of the Council on Dental Health of the American Dental Association, and Ruth Fisher, R.N., associate director of the National Organization for Public Health Nursing.

FINANCES OF MEDICAL SCHOOLS

A preliminary report on the financial status and the needs of medical schools, based on a study by the Surgeon General's Committee on Medical School Grants and Finances, has recently been made available to deans and finance officers of medical schools and others concerned with medical education. Included are data on the income, expenses, and current needs for additional staff and facilities of the 72 medical schools and 7 schools of basic science in the United States. The full report, of which this is one section, will be published later and will include also sections on the effect of Public Health Service grants to medical schools and on the committee's conclusions and recommendations.

The study was conducted in coöperation with the joint Committee on the Survey of Medical Education of the American Medical Association and the Association of American Medical Colleges. The Surgeon General's Committee was appointed on the recommendation of the National Advisory Health Council. Its chairman is Dr. Lowell J. Reed, vice president of Johns Hopkins University and president of the American Public Health Association.

NUMBER OF PUBLIC HEALTH NURSES

The total number of nurses employed for public health work in the United States reached 25,000 in 1950 for the first time. This is indicated by the Public Health Service's 1950 tabulation of nurses employed by public health agencies in various categories. The number has gone up more than one-fifth in the 5 years since 1945. More than half of the total were employed by local official agencies, and nearly 6,000 by local boards of education. The numbers employed by these two agencies increased 22 and 37 per cent respectively in the 5 years.

The report is available from the U. S. Public Health Service, Washington 25, D. C.

HOSPITALIZING THE MENTALLY ILL

On the recommendation of the National Advisory Mental Health Council a suggested model law covering procedures for hospitalizing persons who are mentally ill has been prepared by the Federal Security Agency. Robert H. Felix, M.D., director of the National Institute of Mental Health, and Alanson W. Willcox, general counsel of FSA, directed the draft, with the assistance of Winfred Overholser, M.D., superintendent of St. Elizabeths Hospital and other legal and psychiatric advisers. All state governors have received a copy of

this model law which embodies the basic principles suggested in the report on mental health programs of the 48 states made to the 1950 Governors' Conference by the Council of State Governments.

In his letter to the governors, Oscar R. Ewing, FSA administrator, said, "The essence of the law, is in its assurance to persons who are mentally ill of maximum opportunity for prompt medical care; protection against emotionally harmful or degrading treatment; and protection against wrongful confinement and deprivation of rights."

Copies of the model law are available from the National Institute of Mental Health, Bethesda 14, Md.

PRESCRIPTION RENEWAL REGULATIONS

A formal hearing has been demanded on behalf of the American Pharmaceutical Association, Washington, from the Federal Security Administrator on the matter of the conditions under which physicians' prescriptions may and may not be refilled. The American Pharmaceutical Association is of the opinion that the Food and Drug Administration, which is a unit of the Federal Security Agency, is claiming powers not given to it by the Food, Drug and Cosmetic Act in statements made by representatives of the Food and Drug Administration which maintain that no prescription may be refilled without a written request from the physician.

The American Pharmaceutical Association maintains that prescriptions should be refillable unless marked "Not to be Refilled" or unless they contain a drug or drugs falling under the prohibitions of the law.

ANOTHER NEWSLETTER

In August the Health Information Foundation began the publication of *Progress in Health Services*. Its primary purpose, it says, "is to discover and report instances in which American individuals and groups have voluntarily evolved and made effective sound arrangements or plans for improving health services and making them available to more people whenever needed and with less financial burden." 420 Lexington Avenue, New York 19.

INDUSTRIAL HYGIENE LABORATORY MOVES TO CINCINNATI

James G. Townsend, M.D., chief of the Division of Industrial Hygiene, U. S. Public Health Service, has announced that the division has moved its laboratory from the National Institutes of Health in Bethesda, Md., to Cincinnati, where the new laboratory, located at 1014 Broadway, shares a building with the Environmental Health Center. The new laboratory was visited on September 14 by a group who attended an informal open house at which a number of exhibits and demonstrations of various projects was presented.

TOXIC PROPERTIES OF INSECTICIDES

A recent report by Arnold J. Lehman, *Some Toxicological Reasons Why Certain Chemicals May or May Not Be Permitted as Food Additives*, gives some new light on the safety of some commonly used insecticides. Dr. Lehman concludes that the potential hazard to human beings of DDT may have been underestimated. He suggests that since chlordone presents the greatest all-round hazards of the commonly used chlorinated insecticides, its household use should be strictly limited and should never be used where it might contaminate foods. Lindane has about one-fourth the hazard of DDT, while methoxychlor is one of the safest of insecticides. Copies of the complete report may be obtained from the Editorial Office, Quarterly Bulletin, Association of Food and Drug Officials of the United States, 2411 N. Charles St., Baltimore 18, 30¢.

PERSONALS

HECTOR R. ACUNA, M.D.,† formerly a student in the School of Public Health, Yale Medical School, has accepted the position of district and city health officer in Piedras Negras, Coahuila, Mexico.

CATHERINE ADAMS,† formerly district nutrition consultant with the Kentucky State Department of Health, and MARY HOLKE JENKINS of Columbia, Mo., have been appointed nutrition consultants in the Missouri State Division of Health.

E. MAXINE BENNETT, M.D., a member of the faculty of the University of Wisconsin Medical School, Madison, has been appointed to the newly created post of medical specialist in the Bureau for Handicapped Children, State Department of Public Instruction.

ROBERT W. BERLINER, M.D., formerly assistant professor of Medicine at Columbia University, has been made chief of the Laboratory and Clinical Section on Kidney and Electrolyte Metabolism of the National Heart Institute, Public Health Service.

SARA E. BRANHAM, M.D.,* Laboratory of Biologics Control, Microbiology Institute, National Institutes of Health, was recently awarded the first Alumnae Award for Distinguished Achievement by her Alma Mater, Wesleyan College, Macon, Ga. Dr. Branham also delivered the commencement address there on June 5.

CHARLES T. CARNAHAN,† public health engineer, U.S. Public Health Service, has been appointed to the Sanitation Division of the Colorado State Department of Public Health, to serve as liaison officer between three river basin offices and the department.

HOLLAND M. CARTER, M.D.,† director of the Beaufort-Jasper County Health Departments, South Carolina State Board of Health, will be at Harvard University School of Public Health this year working toward the M.P.H. degree under a fellowship by the National Foundation for Infantile Paralysis.

RITA CHAZAN, of the staff of the Buffalo-Erie County Tuberculosis and Public Health Association (N.Y.), has been appointed executive secretary of the Orange County Tuberculosis and Health Association with headquarters in Newburgh, N. Y.

A. M. CLARKSON, M.D., formerly in the private practice of medicine in the state, is now director of the Choctaw-McCurtain Counties Health Department in Oklahoma with headquarters in Hugo.

WILLIAM H. COE, M.D.,† has been named director of the health department of Pittsburg, McIntosh, and Latimer Counties, Okla., succeeding A. B. COLYAR, M.D.†

BARBARA L. CROWTHER,† has been appointed nutritionist, Cleveland Division of Health, Bureau of Health Education.

ALBERT J. DESAUTELS, M.D., has been appointed director of the newly-formed Chronic Disease Section of the Oregon State Board of Health. Dr. Desautels recently received the Master of Public Health degree from Harvard University.

GEORGE M. DEYOUNG, M.D., most recently with the U.S. Public Health Service doing special work in nutrition and chronic diseases, has been appointed health officer of the Lee County (Ill.) Health Department.

PENELOPE S. EASTON,† who spent 2 years on duty with the Alaskan Territorial Health Department, and H. D. JAMES of California have been added to the nutrition staff of the Florida State Health Department respectively in the Tallahassee and Tampa regions.

LAURENCE M. FAIRCHILD, M.D., a resident in psychiatry at the University of Colorado Department of Medicine, is now also the director of the reactivated Mental Health Section, Colorado State Department of Public Health.

CHARLES FIFE, X-ray Technician with the Mobile X-Ray Unit of the Arizona State Department of Health, has reported for active duty with the U. S. Marine Corps. He has been replaced by DEVORE B. GORDON, formerly in the x-ray department, St. Monica's Hospital, Phoenix.

RUTH FISHER, R.N.,† associate director of the National Organization for Public Health Nursing, has recently been appointed staff associate to the Commission on Chronic Illness. Appointed also to the Commission was ALLEN O. GRUEBBEL, D.D.S.,* Secretary of the Council on Dental Health of the American Dental Association.

CHARLOTTE M. GEISLER has joined the Suffolk County (N. Y.) Tuberculosis and Public Health Association, as health educator, after receiving an M.A. in health education from New York University.

JAMES C. GILLILAND, recently returned from graduate training at Harvard University in Industrial Hygiene Engineering, is the new director of the Division of Industrial Hygiene, Nebraska State Health Department.

FRANCES W. GREENE, for the past 2 years director of health education for the Texas

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* Fellow A.P.H.A.
† Member A.P.H.A.

Tuberculosis Association, is now director of case finding of the District of Columbia Tuberculosis Association.

THOMAS A. HART, PH.D.,† who previously served as director of malaria control in Bolivia for the Institute of Inter-American Affairs, Health and Sanitation Division, and now Dean, School of Arts and Sciences, Roosevelt College of Chicago, this past summer gave a series of lectures in Spanish on "Recent Advances in Public Health," at San Simon University, Cochabamba, Bolivia.

FRANCES HELMIG, registered occupational therapist, has resigned as occupational therapy consultant, National Society for Crippled Children and Adults to complete work for a master's degree at the University of Southern California, Los Angeles.

ELIZABETH HILL, formerly public health nurse with the Oakland (Calif.) Health Department, is now on assignment with the World Health Organization in Bangkok, Thailand.

HERMAN E. HILLEBOE, M.D.,* New York State Commissioner of Health, in September spent a week in England on the medical problems of civil defense, and a week in Geneva as the American representative on the Expert Committee on Tuberculosis of the World Health Organization, and also attended an executive meeting of the International Union Against Tuberculosis in Copenhagen.

C. ROBERT JOHNSON,† formerly chief of the General Sanitation Section, Denver Bureau of Health and Hospitals, is the new director, Public Health Engineering Section, Colorado State Department of Public Health.

C. FRANK KRAMER, JR., since 1948 executive vice-president of the Salvation Army Association of New York, has been named director of field relations of the American Cancer Society, where he will coördinate the public education, publicity, campaign, and field army services sections into a department with consolidated administration equivalent to that of the several sections of the medical and scientific department.

MILTON D. LEWIS, graduate in sociology from the University of Cincinnati, has been appointed assistant health educator for the Erie County, Pa. Health and Tuberculosis Association.

ELIZABETH LEWTON, former chief social worker of the San Mateo County Child Guidance and Consultation Service, is now mental health consultant of the California State Department of Health.

HELEN N. LOVELL, B.S., M.S., director of nutrition service of the Iowa State Department of Health, has resigned to become instructor in home economics, University of Iowa.

DONALD MAINLAND, M.D., formerly professor of anatomy at the School of Medicine of Dalhousie University, Halifax, Nova Scotia, has been appointed professor of preventive medicine in charge of medical statistics at New York University College of Medicine, a unit of the New York University-Bellevue Medical Center.

ELIZABETH L. MAUGHS,† nutrition consultant, Missouri State Division of Health, is taking a year postgraduate study in public health nutrition at the University of North Carolina.

WILLIAM E. MOSHER, M.D.,* Cortland County commissioner of health, has accepted a position as director of Maternal and Child Health Services, Erie County (N.Y.) Health Department.

LOUISE M. NOBLE, for the last 4 years a regional child welfare representative in the Plains States, with headquarters in Kansas City, Mo., has been appointed chief of field services in the Children's Bureau Division of Social Services to be responsible for directing the activities of the Bureau's regional child welfare representatives.

SONIA PORCHMOUTH † is public health educator in the Westchester County (N.Y.) Health Department.

EDITH H. RAFTON,† former supervising medical insurance statistics assistant in the Statistical Bureau of the Metropolitan Life Insurance Company, is now statistician at the newly opened Health Center sponsored jointly by the New York Hotel Trades Council and the New York Hotel Association, where free medical service is being given to over 35,000 hotel union members.

FRANCIS REIERSON, formerly Marion County health educator, has been appointed director of the Health Education Section of the Oregon State Board of Health.

MARY LOUISE REIMANN, has been appointed Health Education Secretary of the Somerset (Pa.) County Tuberculosis Society. She was formerly with the Mercer County Tuberculosis and Public Health Society.

EDWIN G. RILEY, M.D.,† has been appointed Regional Medical Administrator of the United Mine Workers of America Health Program with headquarters in Charles, W. Va., where he succeeds JOHN T. MORRISON, M.D.,† who will serve in the Washington headquarters of U.M.W.

ELIZABETH B. ROBINSON, has been transferred from the Bureau of Industrial Hygiene in the Environmental Cancer Section, Pennsyl-

vania State Department of Health, to the Division of Public Health Education in the same department.

KENNETH C. ROSS,† formerly consultant with the personnel and training service of the National Tuberculosis Association, was recently appointed health education consultant, Oregon Tuberculosis and Health Association.

JAMES STEVENS SIMMONS, Brigadier General, MC, USA, (Ret.),* Dean and Professor of the Harvard School of Public Health, has been appointed to the Armed Forces Medical Advisory Committee by Secretary of Defense Louis Johnson.

D. WAYNE SMITH, formerly associated with the Akron University Speech Clinic and the Cleveland Rehabilitation Center, has been made hearing and vision consultant in the Maternal and Child Health Section of the Oregon State Board of Health.

WINFIELD S. STONE, D.V.M., assistant director of the bureau of animal industry, in New York State Department of Health, has been given a temporary appointment as veterinary consultant in the Bureau of Communicable Disease Control, to administer the state's rabies control program. He succeeds ALEXANDER ZEISSIG, D.V.M.,† during the latter's leave of absence for a South American assignment with the Pan-American Sanitation Bureau.

HENRY C. SWEANY, M.D.,† director of research and laboratories for the Municipal Tuberculosis Sanitarium, Chicago, for the past 30 years, has been appointed chief medical director of all Florida State Tuberculosis Sanatoriums.

DONALD M.D. THURBER,† formerly secretary of the Wayne County Chapter (Mich.), National Foundation for Infantile Paralysis, has been appointed executive director of the Governor's Study Commission on the Deviated Criminal Sex Offender for the State of Michigan.

FREDERICK J. WEISMILLER, JR., M.D., formerly in charge of the medical department at the New York Port of Embarkation, has been appointed full-time director of Bausch & Lomb Optical Company's Medical Department, Rochester, N. Y.

JOSEF J. WEISSKOPF, M.D.,* is now chief, Federal Employee Health Branch, Division of Hospitals, U.S. Public Health Service, Washington.

EDWIN WEST, M.D., assistant health officer for the Tucson-Pima County Health Unit (Ariz.), has been called to active duty with the U. S. Marine Corps.

PAUL WILLIAMSON, executive secretary of the San Diego (Calif.) Tuberculosis and Health Association, has resigned to become executive secretary of the Iowa Tuberculosis Association with headquarters at Des Moines. He has been succeeded by JOHN MCCARTHY, formerly on the staff of the Los Angeles Association.

* Fellow A.P.H.A.
† Member A.P.H.A.

DEATHS

E. W. BERTNER, M.D., chairman of the executive committee of the Texas Division of the American Cancer Society, died in July.

F. BORGES-VIEIRA, M.D., DR.P.H.,* professor of epidemiology and vice-director, faculty of hygiene, University of Sao Paulo, Brazil, died August 31. Dr. Borges-Vieira was one of the first to graduate from Johns Hopkins University School of Hygiene and Public Health, 1920 (Epidemiology Section).

GEORGE R. GOOD, M.D., M.P.H.,† Altoona, Pa. (Health Officers Section).

EDITH S. KATZ, who had served for 24 years as staff member in charge of vocation counseling, placement, and welfare work at the New York League for the Hard of Hearing, died in August.

ELMER C. KEFAUVER, M.D., retired health officer of Frederick County, Md., died on July 6 at the age of 82.

JOHN S. MCMAHON, with the Industrial Hygiene Foundation of the Mellon Institute since 1936 and its managing director since 1942, died September 15 at the age of 47.

L. A. SHOUDY, M.D.,* Medical Director of the Bethlehem Steel Company, died August 30 at the age of 70 (Industrial Hygiene Section).

PAUL P. SWETT, M.D., Chairman of the Crippled Children Technical Medical Advisory Subcommittee of the Committee on Public Health of the Connecticut State Medical Society, died recently.

ELVA A. WRIGHT, M.D., founder and president of the Houston (Tex.) Anti-Tuberculosis League, and president emeritus of the Texas Tuberculosis Association, died July 18, at the age of 83.

CONFERENCES AND DATES

Coming in November, December, and January:

American Association for the Advancement of Science, Cleveland, Ohio. Dec. 26–30.

American Economic Association. Chicago, Ill. Dec. 27–30.

American Municipal Association. Washington, D. C. Dec. 3–6.

American Political Science Association. Washington, D. C. Dec. 28–30.
American Public Welfare Association. Round Table. Chicago, Ill. Nov. 30–Dec. 2.
American Society of Heating and Ventilating Engineers. Philadelphia, Pa. Jan. 22–25, 1951.
American Statistical Association. Congress Hotel, Chicago, Ill. Dec. 27–29.
American Trudeau Society (Eastern Section), Baltimore, Md. Nov. 10.
American Water Works Association:
Arizona Section. Tucson. Nov. 30–Dec. 2.
Joint Cuban-Florida Water and Sewage Conference. Fort Lauderdale, Fla. Nov. 13–15.
Virginia Section. Richmond. Nov. 6–7.
Association of Military Surgeons. New York, N. Y. Nov. 9–11.
Civil Service Assembly. Annual Conference. Atlanta, Ga. Nov. 27–30.
Family Service Association of America. New York, N. Y. Nov. 16–17.
International City Managers' Assn. Houston, Tex. Nov. 26–30.
Interstate Postgraduate Medical Association of North America. International Assembly. Hotel Stevens, Chicago, Ill. Nov. 6–9.
Michigan Public Health Association. Grand Rapids, Mich. Pantlind Hotel, Nov. 29–Dec. 1.
National Conference on Intergroup Relations. New, York, N. Y. Nov. 15–17.
National Committee for Mental Hygiene. New York, N. Y. Nov. 16–17.
National Municipal League. Buffalo, N. Y. Nov. 20–22.
National Social Welfare Assembly. New York, N. Y. Nov. 28–29.
North Dakota Public Health Association. Bismarck. Nov. 16–18.
Oklahoma Public Health Association. Oklahoma City, Okla. Nov. 30–Dec. 2.
Third Inter-American Congress on Brucellosis. Washington, D. C. Nov. 6–10.

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